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Zusammenfassung

In dieser kumulativen Dissertation werden qualitative und quantitative Analysemethoden angewendet um zu einem besseren Verständnis der grundlegenden Prozesse und Auswirkungen von großflächigen Landinvestitionen beizutragen. Die empirische Arbeit basiert auf der Auswertung rechtlicher Dokumente, 58 Experteninterviews und 20 Fokusgruppendifkussionen, die in Ghana und Kenia durchgeführt wurden, sowie einem Haushaltsdatensatz, der 436 Vertragsbauern und 388 unabhängige Ölpalmbauern im Umfeld einer großflächigen Ölpalminvestition in Ghana umfasst.

Im ersten Artikel wird das Zusammenspiel zwischen Landgovernancesystemen und großflächigen Investitionen in Agrarland dargelegt. Ein eingebettetes Fallstudiendesign ermöglicht eine Gegenüberstellung der Länder Ghana und Kenia, sowie jeweils einer Agrarinvestition pro Land. Die Frage, *wie großflächige Landtransaktionen implementiert werden*, steht dabei im Zentrum der qualitativen Untersuchung, die sich methodisch an Williamsons vier Ebenen der sozialwissenschaftlichen Analyse anlehnt.

In einem ersten Schritt wird die Entstehung des Bodenordnungssystems angesichts der zugrundeliegenden informellen und formellen Institutionen erläutert. Während erstere gesellschaftlich tiefverwurzelte Normen und Traditionen berücksichtigen, beinhalten letztere staatliche de jure Regulierungen der Landbesitzverhältnisse (Williamsons erste und zweite Ebene). Das Bodenordnungssystem bildet die institutionellen Rahmenbedingungen für den Prozess des Landerwerbs. Dieser wird zunächst allgemein für Ghana und Kenia herausgearbeitet und anschließend anhand der beiden Investitionsbeispiele konkretisiert (Williamsons dritte Ebene). Darauf folgt eine Zusammenfassung von unmittelbaren, sowie mittel- und langfristigen Auswirkungen der beiden Landtransaktionen aus der Perspektive der lokalen Bevölkerung (Williamsons vierte Ebene). Anhand der komparativen Analyse werden schließlich Zusammenhänge identifiziert, die über Williamsons Institutionenhierarchie hinausragen.

Eine Synthese ergibt, dass die Landgovernancesysteme nicht in der Lage sind, angemessen auf die gestiegene Nachfrage nach Land zu reagieren. Aus einem Kanon von überlappenden und sich teilweise widersprechenden traditionellen Praktiken, kolonialen Rechtsvorschriften sowie nach der Unabhängigkeit modifizierten Gesetzestexten ist ungeachtet jüngerer Reformanstrengungen bisher noch kein umfassend konsistenter Rechtsrahmen entstanden. Demnach basiert der Prozess des Landerwerbs in Ghana und Kenia eher auf intransparenten

und teilweise illegalen Handlungen als auf eindeutigen gesetzlichen Vorgaben. In solch einem arbiträren System, indem Verwaltungsorgane oft nur über geringe finanzielle und fachliche Kapazitäten verfügen, hängt es deshalb stark vom individuellen Verhalten eines Investors ab, ob großflächige Landinvestitionen gewinnbringend für die lokale Bevölkerung ausgestaltet werden.

Dies führt letztlich dazu, dass die Handlungen von Investoren Rückwirkungen auf das Landgovernancesystem des Gastlandes haben. Da Investoren schwache Governancestrukturen zunehmend auf Kosten der lokalen Bevölkerung ausnutzen, ist die Kritik der Zivilgesellschaft am Prozess des Landerwerbs und des zugrundeliegenden Bodenordnungssystems so stark gestiegen, dass das Landgovernancesystem sowohl in Ghana als auch in Kenia gegenwärtig reformiert wird. Zusammenfassend lässt sich also festhalten, dass nicht nur das Landgovernancesystem großflächige Landinvestitionen beeinflusst, sondern dass großflächige Landinvestitionen auch Auswirkungen auf das Landgovernancesystem haben.

Im zweiten Artikel wird der komparative Blickwinkel hin zu einer institutionenökonomischen Analyse des Fallstudienlandes Ghana verengt. Mit Hilfe des institutionellen Analyserahmens (institutional analysis and development framework) von Ostrom wird der Frage nachgegangen, *warum großflächige Landinvestitionen unterschiedliche Auswirkungen auf die lokale Bevölkerung haben und wie solche Auswirkungen in einem konkreten Fall aussehen.*

Ein erster Analyseschritt zeigt, dass die Durchführung großflächiger Landinvestitionen nicht isoliert von unterschiedlichen Kontextfaktoren zu betrachten ist, sondern jeweils durch die vorherrschende Ressourcenausstattung im Gastland, durch konstitutionelle und kulturelle Rahmenbedingungen sowie durch deren konkrete Auslegung in formalen Landrechtsgesetzen, aber auch in informellen Landrechtstraditionen, geprägt sind. Dementsprechend kanalisieren Kontextfaktoren nach Ostrom die Handlungen von verschiedenen Akteuren, wie beispielsweise von Investoren, staatlichen Institutionen, traditionellen Autoritäten oder der Zivilgesellschaft, die innerhalb der Ostrom'schen Aktionsarena Land nachfragen oder anbieten, Flächen enteignen, Verhandlungen führen, Transaktionen umsetzen oder den Prozess der Landnahme regulieren und überwachen.

In dieser qualitativen Analyse stellt sich heraus, dass Auswirkungen von großflächigen Landinvestitionen aus drei Gründen für die lokale Bevölkerung stark variieren. Erstens mangelt es an einem effektiven und vollständig implementierten Landgovernancesystem mit eindeutigen Handlungsanweisungen für die Akteure, zweitens fehlt eine Harmonisierung

zwischen der formalen Landrechtsgesetzgebung und den informellen Regeln und drittens existieren asymmetrische Machtverhältnisse zwischen den einzelnen Akteuren. Demzufolge bestehen Kontextfaktoren, die erstens den Akteuren das opportunistische Abschöpfen von Renten ermöglichen, die zweitens dazu beitragen, dass durch die Rhetorik einzelner Akteure unrealistische Erwartungen geweckt werden, und die drittens den Akteuren erlauben gezielt für sich selbst oder ausgewählte Teile der lokalen Bevölkerung Lobbyarbeit zu betreiben. Dies führt dazu, dass die Auswirkungen für die lokale Bevölkerung stark variieren und größtenteils von den Handlungen der Akteure in der Aktionsarena abhängen.

Die Auswertung von Fokusgruppendiskussionen für eine Ölpalminvestition in Ghana zeigt außerdem, dass weitere Faktoren wie die Distanz eines Haushalts zum operationellen Zentrum einer Investition, seine Chance eine permanente, eine saisonale oder gar keine Beschäftigung zu erhalten, die Möglichkeit in die Vertragslandwirtschaft einzusteigen oder die Größe des an den Investor verlorenen Nutzlandes, zusätzlich unterschiedliche Auswirkungen von großflächigen Landinvestition bedingen. Zusammenfassend lässt sich demnach festhalten, dass zum Einen schon bestehende soziale Differenzierung durch eine großflächige Landinvestition verstärkt werden kann, wenn zum Beispiel traditionelle Eliten als Akteure in der Aktionsarena vermehrt für Bevölkerungsgruppen mit höherem Wohlstand Lobbyarbeit betreiben. Zum Anderen kann jedoch auch durch die geographische Lage der Investition oder deren Rekrutierungspolitik eine neue Form von sozialer Differenzierung entstehen.

An die beiden qualitativen Analysen schließt sich mit dem dritten Artikel eine quantitative Untersuchung der Ölpalminvestition in Ghana an. Diese geht der Frage nach, *ob Vertragslandwirtschaft und sichere Landbesitzrechte im Umfeld von großflächigen Landinvestitionen die Ländliche Entwicklung begünstigen.*

Ein Überblick über die einschlägige Fachliteratur zeigt zunächst, dass großflächige Landinvestitionen zwar mit großen Hoffnungen verbunden sind, jedoch oft nicht die gewünschte Kommerzialisierung von Kleinbauern erzielen. Ebenso sind die Auswirkungen von Vertragslandwirtschaft unter Forschern heftig umstritten. Der kleinste gemeinsame Nenner besteht darin, dass Auswirkungen per se nicht verallgemeinerbar sind, sondern stark vom vertraglich angebauten Erzeugnis und der Vertragsausgestaltung durch den Investor abhängen. Dementsprechend begrenzt sich diese Arbeit auf die Analyse eines Fallbeispiels von Vertragsanbau in einem kompetitiven Umfeld, in dem ein Investor mit Nachfrageüberhang Kleinbauern einen langfristigen Vertrag für die Produktion von Ölpalmfrüchten anbietet und dabei deren Landrechte unangetastet lässt.

Die Tatsache, dass die Vertragsvergabe durch den Ölpalminvestor als quasi-natürliches Experiment betrachtet werden kann (und Landwirte demnach keinen Einfluss hatten, ob sie einen Vertrag erhielten oder nicht), ermöglicht die Identifikation von Kausalzusammenhängen ohne potenzielle Verzerrungen durch nicht beobachtbare Unterschiede zwischen Behandlungs- und Kontrollgruppe. Somit ist die Analyse im Gegensatz zu vielen früheren Studien frei von Selektionsverzerrungen, die durch unterschiedliche Grundhaltungen der Landwirte, die geografische Lage ihrer Felder oder durch Auswahlkriterien des Investors entstehen können. Um die Auswirkungen möglichst breit zu erfassen, werden Regressionen mit einer Reihe von monetären und nicht-monetären abhängigen Variablen auf Haushaltsebene und parzellenweise als OLS-Modelle geschätzt.

Die Ergebnisse zeigen, dass Vertragsanbau einen positiven Effekt auf die Vermögenswerte von Haushalten hat und sich günstig auf die subjektiv wahrgenommene zukünftige Sicherheit der Befragten auswirkt. Im Gegensatz dazu haben Haushalte, die unter Vertrag produzieren weniger Einkommen aus landwirtschaftlichen Tätigkeiten und einen geringeren Ölpalmprofit pro Parzelle als Haushalte die Ölpalmen ohne Vertrag anbauen. Weiterführende Analysen zeigen, dass Vertragsbauern von der vertraglichen Bindung zum Investor insofern profitieren, dass sie im Rahmen des Vertrages Zugang zu Produktionsmitteln und Krediten erhalten, welche ihnen eine Risikodiversifizierung ermöglichen. Dementsprechend haben Haushalte, die im Vertragsanbau tätig sind, eine höhere Wahrscheinlichkeit Einkommen durch Tätigkeiten außerhalb des Agrarsektors zu generieren. Die Analyse auf Parzellenebene zeigt, dass Vertragsbauern auf solchen Parzellen auf denen Ölpalmen nicht unter Vertrag angebaut werden genauso hohe Profite erwirtschaften wie Haushalte, die nicht am Vertragsanbau teilnehmen. Daher ist es naheliegend, dass Prinzipal-Agenten-Probleme, sprich das Abzweigen von Produktionsmitteln und Arbeitsressourcen für andere Tätigkeiten, eine plausible Erklärung für den niedrigeren Profit von Vertragsbauern bieten.

Darüber hinaus haben sichere Landbesitzrechte einen positiven Effekt auf die wahrgenommene zukünftige Sicherheit, das Haushaltseinkommen und den Profit pro Parzelle. Eine Vielzahl von Robustheitstests, wie beispielsweise die separate Schätzung von Modellen für Landbesitzer und Landlose oder die Umkodierung der binären Variable Vertragslandwirtschaft gemäß Größen- und Zeiteffekten, bestätigen diese Ergebnisse. Dementsprechend können großflächige Landinvestitionen zur Ländlichen Entwicklung beitragen, wenn sie bestehende Landbesitzrechte berücksichtigen und die lokale Bevölkerung durch den Vertragsanbau integrieren. Es darf jedoch nicht vergessen werden, dass diese

Maßnahmen nicht den ärmsten Bevölkerungsschichten zugutekommen, da diese oft per se von Vertragslandwirtschaft ausgeschlossen sind.

Im vierten und letzten Artikel wird an die vorangehende quantitative Analyse angeknüpft. Hierbei liegt der Fokus auf der Frage, *ob sich Vertragslandwirtschaft und sichere Landbesitzrechte im Rahmen von großflächigen Landinvestitionen über ähnliche Wirkungskanäle günstig auf die Ölpalmbauern auswirken.*

Anhand der Fachliteratur wird in einem ersten Schritt herausgearbeitet, dass sowohl Vertragslandwirtschaft als auch sichere Landbesitzrechte eine Reihe von Unsicherheiten reduzieren können, denen Haushalte in ländlichen Gebieten mit unvollständigen Absatz-, Input-, Kredit- und Versicherungsmärkten ausgesetzt sind. So mindern Verträge beispielsweise das Absatzrisiko durch die garantierte Abnahme seitens des Vertragspartners und senken Produktionsrisiken, indem sie Zugang zu Produktionsmitteln und Krediten ermöglichen. Werden Landbesitzrechte als Sicherheit eingesetzt, bieten sie ebenfalls Kreditzugang, der sich beispielsweise in Krisenzeiten bewährt, um Nahrungsmittelunsicherheiten, gesundheitliche Risiken oder die Verwundbarkeit im Falle von Umweltkatastrophen zu reduzieren. Darüber hinaus werden Vertragslandwirtschaft und sichere Landbesitzrechte auch mit positiven Einkommens- und Produktivitätseffekten oder mit einer besseren gesellschaftlichen Stellung assoziiert.

Um diesen weitreichenden Auswirkungen Rechnung zu tragen und objektiv schwer messbare Sicherheitsaspekte angemessen zu berücksichtigen, wird in verschiedenen OLS-Regressionen die subjektive Zufriedenheit der Befragten mit ihrer gesamten Lebenssituation geschätzt. Dabei stellt sich zunächst heraus, dass sowohl die Teilnahme am Vertragsanbau als auch sichere Landbesitzrechte einen positiven Effekt auf die Lebenszufriedenheit der Befragten haben. Da in den Modellen neben den gängigen Kontrollvariablen auch für monetäre Einkommenseffekte kontrolliert wird, liegt der Schluss nahe, dass sich Vertragslandwirtschaft und sichere Landbesitzrechte in einem multidimensionalen Konstrukt von Gesamtlebenszufriedenheit vor allem positiv auf die Sicherheitsdimension auswirken.

Wird dem ökonometrischen Modell in einem weiteren Schritt ein Interaktionsterm hinzugefügt, zeigt sich, dass sichere Landbesitzrechte zwar weiterhin zu einer höheren Lebenszufriedenheit der nicht am Vertragsanbau teilnehmen Befragten führen, jedoch keinen Effekt für Vertragsbauern haben. Dies ist insofern plausibel, da andere Studien zeigen, dass ein zusätzlicher Anstieg in einer bestimmten Dimension der Lebenszufriedenheit gemäß der

Argumentation des abnehmenden Grenznutzens, kaum einen Zuwachs in der Gesamtlebenszufriedenheit mit sich zieht, wenn bereits ein gewisses Level an Lebenszufriedenheit in dieser Dimension erreicht ist. Weitreichende Robustheitsanalysen, wie beispielsweise die Schätzung der Modelle als geordnete logistische Regressionen, bestätigen diese Ergebnisse.

Zusammenfassend lässt sich also festhalten, dass Vertragslandwirtschaft und sichere Landbesitzrechte primär Sicherheitsaspekte ansprechen und zu einem bestimmten Grad in einem substituierbaren Verhältnis zueinander stehen. Während Vertragsbauern ihre Sicherheitsbedürfnisse durch den Vertrag befriedigen, fehlt Nicht-Vertragsbauern dieser Möglichkeit der Absicherung, sodass sie auf sichere Landbesitzrechte angewiesen sind, um grundlegende Sicherheitsbedürfnisse zu erfüllen. Die Analyse zeigt jedoch nicht, dass Vertragsanbau sichere Landbesitzrechte ersetzen kann, sondern dass Vertragslandwirtschaft die Gesamtlebenszufriedenheit der Befragten insbesondere dadurch steigert, dass sie Unsicherheiten reduziert, die auch dann existieren, wenn großflächige Landinvestitionen bestehende lokale Landrechte respektieren.

Diese kumulative Dissertation sensibilisiert den Leser für die Rückwirkungen, die großflächige Landinvestitionen auf das vorherrschende Landgovernancesystem haben. Darüber hinaus wird ein komplexes Zusammenspiel zwischen dem institutionellen Kontext und den Handlungen von Investoren sowie staatlichen und traditionellen Akteuren herausgearbeitet, welches unterschiedliche Auswirkungen auf verschiedene Bevölkerungsgruppen maßgeblich bestimmt und soziale Differenzierung beeinflusst. Ein Vergleich von Vertragsbauern und unabhängigen Ölpalmbauern zeigt, dass Teile der ländlichen Bevölkerung von Vertragslandwirtschaft im Umfeld von großflächigen Landinvestitionen profitieren, weil diese ihnen die Akkumulation von Vermögenswerten, eine größere wahrgenommene zukünftige Sicherheit, sowie eine höhere Einkommensdiversifizierung durch eine Beschäftigung außerhalb des Agrarsektors ermöglicht. Dies spiegelt sich auch in einer höheren subjektiven Gesamtlebenszufriedenheit von Vertragsbauern wider, welche allerdings überwiegend auf den risikomindernden Effekt von Vertragslandwirtschaft zurückgeführt werden kann, da sich sichere Landbesitzrechte, die ebenfalls mit reduziertem Risiko in Verbindung stehen, nur für Nicht-Vertragsbauern positiv auf die Gesamtlebenszufriedenheit auswirken, jedoch für Vertragsbauern keinerlei zusätzliche Effekte besitzen.

Problem statement, structure and contribution of the dissertation

The latest food, fuel, and financial crises raised tremendously the interest in global farmland. By January 2014, the Land Matrix Global Observatory counted 936 large-scale acquisitions amounting to a total of 35.7 million hectares of agricultural land (Land Matrix, 2014). After decades of neglecting the agricultural sector, this investment is urgently needed to close the yield gap in developing countries (OECD and FAO, 2013; UNCTAD, 2013; World Bank 2008). While drivers for investors and host countries have been discussed in a broad body of literature (Cotula et al., 2009; von Braun and Meinzen-Dick, 2009; Görgen et al., 2009; Zoomers, 2010, Deininger and Byerlee, 2012), insights on underlying processes and associated impacts are still incomplete.

Many studies isolate important aspects of the acquisition process. For example, Burnod et al. (2013) and Wolford et al. (2013) focus on the role of the state, Cotula and Vermeulen (2011) and Nolte and Voget-Kleschin (2013) stress on the consultation process, and Schoneveld et al. (2011) and Amanor (2012) analyse the role of traditional authorities. Furthermore, different aspects of the land governance system are examined in conjunction with large-scale land acquisitions. For example, German et al. (2013) point to the customary rights system and Alden Wily (2012) takes the development of the legal framework into consideration. Although these studies provide a better understanding on how land transactions are implemented, they offer only limited evidence on the interplay of the land governance system and large-scale agricultural investment.

Another strand of the literature analyses impacts of large-scale land acquisitions on the local population. In line with anecdotal evidence based on media reports and work by non-governmental organisations, most authors report negative outcomes like Li (2011) and Borras and Franco (2012), who emphasise the exploitation of wage labourers, German et al. (2013) and Borras and Franco (2012), who point to the loss of local land use rights, or White and Dasgupta (2010) and Yaro and Tsikata (2013), who highlight environmental damages. In contrast, some researchers find positive outcomes. For example, Mujenja and Wonani (2012) and Baumgartner et al. (2012) refer to employment creation, Herrmann et al. (2012) point to benefits of outgrower schemes, and Boamah (2011) emphasises indirect livelihood opportunities. Cotula (2013) concludes that the negative outcomes tend to outweigh the positive ones. However, the reasons for varying outcomes and rural social differentiation in the light of large-scale investment in land are not yet fully captured. Moreover, quantitative impact assessments often lack analytical rigour as studies identifying casual effects are scarce.

Thus, despite a growing body of literature on large-scale investment in land (e.g. special issues in *Development*, Vol. 54(1), 2011; *Globalizations*, Vol. 10(1), 2013; *Development and Change*, Vol. 44(2), 2013), gaps in the literature persist.

This dissertation therefore aims to address how the surrounding institutional environment shapes the implementation of an investment and how this in turn produces varying outcomes. It further aims to conduct a rigorous impact assessment with a focus on contract farming. Even though the literature reveals mixed outcomes on contract farming, many researchers point to positive effects (Bellemare, 2012; Michelson et al., 2012; Minten et al., 2009; Key and Runsten, 1999). Thus, contract farming may be a tool to commercialise the agricultural production of farmers in the vicinity of a large-scale investment in land.

The empirical analysis is based on field research in Ghana and Kenya carried out in 2010 and 2011. To inform qualitative analyses, I used legal documents, semi-structured interviews with stakeholders at national and local levels (26 in Kenya and 33 in Ghana), focus group discussions with different sub-groups of the local population who are variously affected by large-scale investment (e.g. contract farmers, casual workers, permanent staff, the vulnerable, the better-off, and so on; 8 in Kenya and 12 in Ghana) and 49 interviews with community representatives in Ghana. For a quantitative impact assessment, I conducted a household survey with 436 contract farmers and 388 independently farming households who were scattered around a large-scale oil palm investment in Ghana.

The four essays of this cumulative dissertation follow a general-to-specific order. The first essay (Nolte and Vāth, 2013) analyses the land tenure systems in Ghana and Kenya, the process of acquiring land as well as the outcomes of this system for one specific investment project. Thereby, the application of Williamson's (1998) four levels of social analysis structures the comparative study.

We found that the present land governance systems in Ghana and Kenya are incapable to cope with the increasing pressure on land resources. In both countries they evolved through the recognition of pre-colonial customary rules and statutory laws which were introduced by the colonial powers, and partly amended and adjusted for by post-independence rulers and reform efforts since the 1990s. In line with work by Alden Wily (2012), we found that this led rather to a set of rules with overlaps and loopholes than a development of a consistent framework. As government agencies, which lack financial and personnel capacities, are not effective in

rule enforcement, the general process of acquiring land does often not conform to the procedures laid down by the *de jure* legislation.

Hence, in the absence of well-defined rules and proper enforcement, investors determine to a large extent how their specific project affects the host country. This in turn leads to repercussions for the land governance system. As investors often misuse the ‘institutional self-service shop’ to their own benefit, they provoke resistance by the local population, civil society organisations, and the international community. Our analysis therefore reveals that large-scale land acquisitions can trigger institutional reform of the land governance system, and thereby goes beyond the current scientific debate.

In the second essay (Väth, 2013), I constrict the analysis and focus only on the case country Ghana. To the best of my knowledge, this is the first study which uses Ostrom’s ‘institutional analysis and development framework’ as theoretical approach to shed light on the mechanisms that guide the land acquisition process and that produce outcomes of large-scale investment in land.

I find that large-scale land acquisitions produce varying outcomes. These are caused by a lack of an effective and fully enforced land governance system with poorly harmonised formal regulations and customary rules, as well as asymmetric power relations between investors, state agents and traditional authorities. Apart from rent-seeking activities, such an institutional environment allows actors to rise unrealistic expectations about outcomes, to lobby for particular sub-groups of the local population and to convert outcomes of large-scale land acquisitions into own benefits.

While other studies also highlight the importance of the institutional environment to understand the underlying processes which shape the implementation and outcomes of large-scale investment in agricultural land (Alden Willy, 2012; German et al. 2013; Nolte and Väth, 2013), this case study further sensitises to rural social differentiation in the vicinity of a large-scale oil palm company. The analysis of focus group discussions reveals that investment neither meets a homogenous local population nor yields to equally outcomes, but rather produces negative and positive effects depending on households’ distance to the company’s centre of operation, the amount of land a household loses, its possibility to gain permanent or casual employment or its chance to farm under contract. In this regard, the essay discloses that large-scale investment in agricultural land is often neither completely detrimental nor fully beneficial, but requires accompanying measures to mitigate increasing inequality.

The third essay (Väth and Kirk, 2014) is inspired by von Braun and Meinzen-Dick (2009) who highlight that contract farming, if it respects local land rights, could foster the commercialisation of local agricultural production while at the same time enabling an investor to profit from local land resources. Following Narayanan (2014), who shows that the effects of contract farming vary among contracted commodities and the contract conditions offered by the company, the essay refrains from generalisation. It rather focuses on the analysis of a potentially beneficial outgrower scheme in a competitive setting in Ghana, where an investor faces excess demand due to large production capacities and offers long-term contracts for oil palm farming to rural households whose property rights remain untouched.

Due to a unique setting, where contract allocation occurred as a quasi-natural experiment, we are able to estimate causal effects while avoiding possible selection bias with regard to farmers' attitudes, geographical placement, and selection criteria applied by the company (Barrett et al., 2012). Thus, we go beyond the difficulties of weak instruments that are faced by those using instrumental variables and go beyond those who can only control for time-invariant unobserved factors when using panel data. To the best of our knowledge, this is the first study which assesses impacts of contract farming by exploiting a quasi-natural experiment.

We provide robust evidence that contract farming enhances participants' asset endowment and perceived future security, which offers long-term security and thus, enables rural households to invest in non-farm activities. At the same time, we find that farmers earn higher agricultural income and profit per acre when they cultivate oil palm independently. This essay therefore offers guidance to decision makers. We suggest that economic integration of the local population in the vicinity of a large-scale investment seems to be most beneficial if investors aim at a mix of outgrower schemes and buying from independently managed plots. However, given the fact that the poorest people do not benefit from contract farming as they are often excluded from participation, it would be misleading to interpret large-scale investment in agricultural land per se as an instrument to reduce poverty.

The fourth essay (Väth et al., 2014) can be understood as a specification of Väth and Kirk (2014). It focuses on overall subjective well-being as outcome variable to jointly capture monetary and non-monetary aspects of contract farming and goes beyond more traditional approaches which dominate the literature. In line with Dedehouanou et al. (2013), who were the first to link subjective well-being to contract farming, we find a highly significant and positive effect of contract farming on subjective well-being.

Apart from income and productivity gains (Warning and Key, 2002; Bolwig et al., 2009; Bellemare, 2012), contract farming may help farmers to overcome rural market imperfections (Key and Runsten, 1999; Deininger, 2011) and reduce their vulnerability to shocks by mitigating production and marketing risks (Masakure and Hanson, 2005). Thus, by controlling for income effects, the subjective well-being approach enables us to focus on security-related aspects and risk-reducing mechanisms which comprise the security domain in a multi-dimensional concept of overall life satisfaction (Cummins, 1996; Oishi et al., 1999).

We find that outgrower schemes mainly enhance subjective well-being by fulfilling security needs, as property rights for land – which are also associated with increased security (Deininger, 2003) – play an important role for non-contract farmers but not for contract farmers. In line with Rojas (2006), who shows that additional gains in life satisfaction from increases in one domain tend to perish with enhanced satisfaction in this domain, we identify a partially substitutive relationship between contract farming and secure property rights to land. However, we do not suggest that contracts can replace secure property rights to land; we rather claim that outgrower schemes can enhance subjective well-being, especially through security gains in a setting where existing local land rights are respected. Hence, this essay reveals that contract farming in the vicinity of a large-scale investment in land has a beneficial effect as it helps to overcome lacks of security.

To sum up, this dissertation consists of two qualitative and two quantitative essays, which refer to processes and impacts of large-scale investment in agricultural land. While the first essay takes a comparative perspective with insights from Ghana and Kenya, and is thus more general when analysing the influence of the institutional framework on the implementation of large-scale land acquisitions, the second essay focuses solely on Ghana and is thus rather specific with regard to process-related aspects. However, it also offers a very broad qualitative analysis of impacts for different subgroups of the local population. The same general-to-specific order holds true for the two quantitative essays. While the third essay is more general when analysing effects of contract farming and secure property rights on a wide range of different outcome variables, the fourth essay focuses on the link between contract farming and secure property rights as well as their relation to subjective well-being, allowing further reasoning on underlying transmission channels. As all four essays concentrate on the case country Ghana and on one specific investment case, we claim that the process-related part (essays one and two) analyses the setting which produces the outcomes that are to some extent assessed by the impact-related part (essays two, three and four).

Overall, this dissertation contributes to a better understanding of underlying processes and impacts of large-scale investment in agricultural land. In particular, it discloses feedback effects between large-scale land acquisitions and the land governance system. Moreover, an analysis of complex linkages between the institutional environment and actions of investors, officials of state agencies and traditional authorities shows how large-scale investment in agricultural land produces varying outcomes for different sub-groups of the local population and thus, influences rural social differentiation. The impact assessment reveals that contract farming under favourable conditions can forge a sustainable link between an investor and parts of the local population and thereby mainly addresses security needs of farmers who face rural market imperfections.

However, results must be treated with caution as the case study design of the four essays has inherent limitations with regard to generalisation. The case countries Ghana and Kenya represent rising African economies which claim leadership in their respective regional economic communities and are characterised by a reasonable degree of macro-economic stability. As former British colonies, they inherited a comparable institutional setting where statutory and customary laws coexist in a land governance system that is undergoing institutional change. Thus, conclusions do not necessarily hold for countries with a different setting. Nevertheless, the conceptual frameworks developed in the first and the second essay can be applied to guide the analysis of countries whose contextual conditions differ.

With regard to the impact assessment, the third and the fourth essay focus on contract farming in a rather favourable setting where farmers' bargaining position is strong due to excess demand for the contracted crop, a lack of specified quality standards and the high monitoring costs for the investor. It would therefore be misleading to interpret the positive effects as prove for the sustainability of large-scale investment in agricultural land. However, it has been shown that under certain conditions, benefits from investments are possible. Moreover, the quantitative impact assessment is limited to one investment case, and therefore cannot be generalised. It also focuses on only two aspects – contract farming and secure property rights to land – out of a wide range of different possible impacts of land investments on the local population. Consequently the need for more rigorous studies which shed light on the outcomes of large-scale investment in agricultural land remains.

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Interplay of Land Governance and Large-Scale Agricultural

Investment: Evidence from Ghana and Kenya^{*}

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ABSTRACT

Recognising the increased demand for agricultural land, this comparative analysis examines the effect of large-scale land acquisitions on their surrounding institutional environment. An embedded case study design allows us to analyse two specific land deals in Ghana and Kenya. We find that insufficiencies in these countries' land governance systems are partly caused by discrepancies between *de jure* and *de facto* procedures; and that weak legal frameworks, coupled with poor enforcement, produce outcomes that depend to a large extent on the investors. We also find that large-scale land acquisitions have a feedback effect on the land governance system, which suggests that large-scale land acquisitions can be drivers of institutional change.

INTRODUCTION

In recent years, an increased demand for agricultural land has fuelled fears of a neo-colonial land rush. This is associated with various risks to rural households' livelihoods, such as the loss of access to land, the exploitation of wage labourers or the damage of environmental buffer zones (German *et al.* 2013; Borras & Franco 2012; White *et al.* 2012; Vermeulen & Cotula 2010; White & Dasgupta 2010). At the same time, these demands often meet seemingly abundant resources in developing countries and governments who aim, for example, to promote rural development, create employment, or bring in tax income (Deininger & Byerlee 2012; Görgen *et al.* 2009). The increased demand for land has thereby raised hopes for a renewed interest in developing countries' chronically underinvested agricultural sectors (OECD & FAO 2013, UNCTAD 2013; World Bank 2008). These opposing views illustrate a vibrant and continuous debate on "land grab or development opportunity" as coined by Cotula *et al.* (2009).¹

Since 2009 a broad research community has focused on different aspects of large-scale land acquisitions.² Studies by Deininger *et al.* (2011), Cotula *et al.* (2011, 2009), Zoomers (2010), and von Braun and Meinzen-Dick (2009) have revealed several drivers of the phenomenon: rapid population growth, a strong trend towards urbanisation, changing dietary preferences, and environmental concerns such as severe land degradation, desertification, and water shortages. Added to these are the increasing global and local demands for food, raw materials, forest products, renewable energy sources, ecosystem services, eco-tourism, and investment.

In-depth case studies elucidate processes of land acquisition, in particular the role played by different actors at different stages in the acquisition process; e.g. Burnod *et al.* (2013) and Wolford *et al.* (2013) on the role of the state; Nolte & Voget-Kleschin (2013), Wisborg (2012), Cotula & Vermeulen (2011) and Vermeulen & Cotula (2010) with a focus on local populations and consultation; Nolte (2013) on actors and institutions in Zambia and German *et al.* (2013) from a comparative perspective based on several cases in five African countries.

Evidence on impacts is still scarce. This is partly due to the temporal scope: while local populations are affected by land deals immediately, outcomes can only be

judged in the long run. Nonetheless, evidence on impacts is growing. Civil society organisations have voiced cautions about possible negative impacts for host countries and the local population, such as displacements, destruction of livelihoods, tax evasion, or increasing dependency through labour contracts (for Ghana: FIAN International 2010b; for Kenya: FIAN International 2010a). Also, first academic studies on impacts are published. For instance, German et al. (2013) find one common feature in a great number of cases: customary rights to vast areas of land are lost for many generations or even permanently with limited or no compensation. Mujenja & Wonani (2012) find rather positive impacts for two Zambian investment cases dating back to the 1970s and 1980s: local land users benefit from job creation and indirect livelihood opportunities. This is in line with findings from Boamah (2011) for a more recent investment in Ghana. Whereas Vāth and Kirk (2012) find positive impacts on contract farming in the sphere of an oil palm investment, Tsikata and Yaro (2013) point to the failure of a mango outgrower scheme where the project ignored the political ecology in Ghana. Vāth (2013) and Cotula (2013: pp. 125) find evidence of both positive and negative effects. However, Cotula (2013) concludes that the negative aspects tend to outweigh positive ones.

Despite this growing evidence on impacts, there remains a lack of understanding on how these impacts are shaped by the institutional setting. To fill this gap, we emphasise the interplay of large-scale land acquisitions and the surrounding institutional environment. Our analysis focuses on the question ‘How are land deals implemented?’ To structure our study, we apply Williamson’s (1998) four levels of social analysis. We work our way from general to specific factors, analysing the implementation of a land transaction against the background of three aspects of the land governance system: the *land tenure system*, the *process of acquiring land*, and the *outcomes of this system*.

The remainder of the paper is organised as follows. We explain our methodology and present the data, introduce our conceptual framework, and analyse, for Ghana and Kenya, the evolution of the land tenure system, the process of acquiring land, and the outcomes. We base this on a comparative analysis that aligns our empirical findings with our conceptual framework. In concluding we offer some policy recommendations.

METHODOLOGY AND DATA

We use a comparative case study design (Dion 1998; Levy 2008; Gerring 2008; Gerring *et al.* 2011), with two African countries as the case studies.³ For each country we concentrate on one investment project initiated by a Western investor in a neglected rural area, which gives us an embedded case study, following Yin (2002: 42–43). Comparing the two projects in the context of their respective countries allows us to examine the mechanisms guiding acquisition processes more comprehensively than a single case would. According to Gerring (2004) and Seawright & Gerring (2008), an intensive study of a single unit (or a smaller class of units) also provides better grounded insights into the functioning of the land governance systems in general and interactions between its stakeholders in particular. In this regard, we consider our study to be in line with Gerring's pathway case (2007), which studies a crucial case to clarify a hypothesis. Similarly, our study offers an elucidation of the causal mechanisms that underlie large-scale land acquisitions.

Our empirical analysis draws on legal documents and on primary data gathered during field research in Ghana and Kenya in 2010 and 2011. We cannot expect to understand the practices involved in land acquisitions just by looking at the *de jure* legal framework as laid out in formal documents; we also require an in-depth analysis of *de facto* processes. We therefore conducted semi-structured interviews with a wide range of stakeholders at the national and local level. In addition, we facilitated focus group discussions with farmers in the region directly affected by the particular investment project, and with employees of the investors.

CONCEPTUAL FRAMEWORK

Land deals are implemented within a complex land governance system. To explain the mechanisms that drive implementation of large-scale land acquisition, we apply Williamson's (1998) four levels of social analysis as a conceptual framework to structure our study.

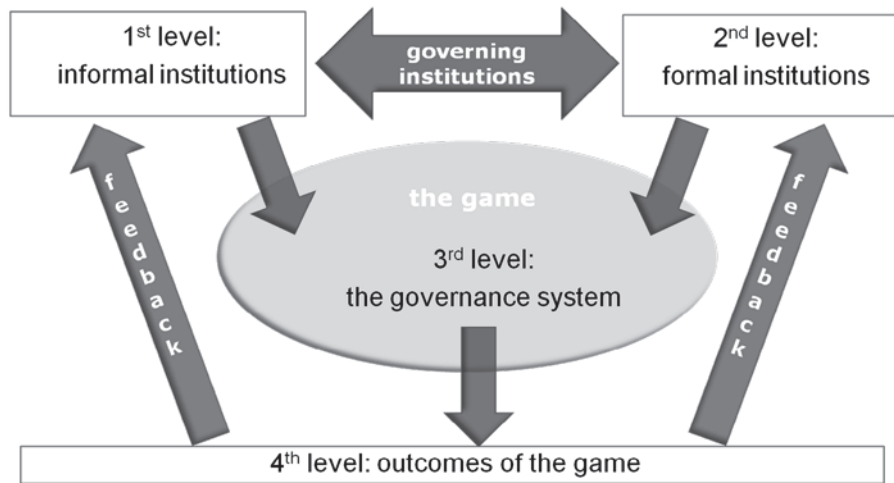
The first level comprises norms, customs and traditions that can be summarised as informal institutions. These are persistent, so changes at the first level usually take

the form of very slow stepwise modifications of values over time. At the second level, which consists of formal institutions (i.e. the de jure legislation), changes can occur relatively fast: formal rules on paper can theoretically change overnight, though a far-reaching institutional reform process in a parliamentary system will be slower, requiring several rounds of technical and political validation. The informal and formal institutions are interconnected and they determine the ‘rules of the game’ – the governance system at the third level. We deviate from Williamson (1998) on the fourth level⁴ in that we concentrate on the outcomes of the ‘game’. Evaluating outcomes of land acquisitions requires some clarifications. First, on the scale of outcomes: are we interested in outcomes on the international, the national or the local level? Second, we need to specify the target group: outcomes for whom, for investors, government officials or local populations? And third, we have to distinguish immediate outcomes of the acquisition process, such as displacements, and medium and long-term outcomes that set in once the project is operational.

Our study focuses on the immediate effects of the acquisition process for the population on the local level, i.e. compensations. We further provide some insights into how the population perceives medium- to long-term impacts. We apply this analytical framework to the land governance systems of our case study countries and the respective investment cases.

While Williamson (1998) limits his analysis to feedback between two levels, we take into account feedback across all four levels. We thus assume – in line with Williamson – that first and second level institutions have reciprocal feedback and that they determine the third level, the governing institutions. Moreover, we believe that the third level lays the groundwork for outcomes at the fourth level. However, going beyond Williamson, we further assume that these outcomes in turn send feedback to the first and second levels about formal and informal rules or institutions. As Figure 1 shows, our analysis is based on a conceptualisation of a system that encompasses these feedback mechanisms.

FIGURE 1
Conceptual Framework*



* Own display, based on Williamson, 1998.

To sum up, in order to examine how land deals are implemented, we first analyse the evolution of the land tenure system, looking at the first and the second levels of our proposed framework. We then analyse the land game on the third level, taking into account the general acquisition process and one example for each country. After this we analyse the socio-economic outcomes of this system on the fourth level. Finally, we synthesise the findings from these four levels by looking at changes in the land governance system induced by investment projects.

ANALYSIS

While the aim of our analysis was to compare the implementation of land deals in the two countries, our two case studies yielded different findings: the Ghanaian case was particularly revealing on aspects of compensation, whereas the Kenyan case produced more information on entrance of the investor.

The evolution of the land tenure system

Ghana

Given the clear north-south differentiation, and the differences between the matrilineal and patrilineal landholding systems, land tenure in Ghana is a highly emotive and sensitive issue (Ubink & Amanor 2008; Aryeetey *et al.* 2007a). The formation of the centralised Akan states in the 17th and 18th centuries laid the foundations for social differentiation and consequently different ‘interests in land’⁵ according to a person’s position in the hierarchy (Kwadwo 2004; Aryeetey *et al.* 2007a). Up to today, the allodial title is the strongest interest in land in Ghana. It is associated with ‘overall ownership’ and held by the chiefs in trust for their people as communal interest (Kasanga & Kotey 2001; Aryeetey *et al.* 2007b). The strongest individual interest in land is the customary freehold title. Its holders possess usufruct rights and are allowed to transfer and inherit the land, but the superior interest of the allodial right holder has to be recognised (Kasanga & Kotey 2001; Lund 2013). Hence, unlike present-day Western-style property rights systems, overlapping interests in land are common in the customary system.

Members of the clan have access to customary freehold because land as a source of livelihood traditionally belongs to the living, the dead, and the yet to be born (Osei 1998; Larbi *et al.* 1998; Mends 2006). This fact has been recognised by the 1992 Constitution, which prohibits the outright sale of what are called ‘stool’ (or ‘skin’) lands⁶ (Republic of Ghana 1992: Art. 267 (6)). Consequently, investors can only enter into lease arrangements.

Before the colonial days, customary law and Islamic Sharia law coexisted. The chieftaincy system was legally recognised by Britain as an instance of ‘native administration’ through which to implement ‘indirect rule’ (Kirk 1999) and at the same time additional interests in land were introduced under common law. Legal pluralism therefore expanded under colonial rule (Aryeetey *et al.* 2007a).

After independence, state land was maintained by post-independence rulers and governed by the State Lands Act (No. 125 of 1962) for public lands (Republic of Ghana 1962b) and the Administration of Lands Act (No. 123 of 1962) for vested lands (Republic of Ghana 1962a). Vested land is land where the state acquired the

management functions by law, while the ownership emanating from custom, i.e. the allodial title, stays with the chief and entitles him to receive ground rents. In general, leaseholds under common law, of both state and customary land, can be granted for up to 99 years for Ghanaians and 50 years for foreigners (Republic of Ghana, 1992: Art. 266 (4)).

Currently, state land in Ghana accounts for roughly 20% of the land surface, while the remaining 80% falls under customary land held by stools (in southern Ghana), skins (in northern Ghana) or families (for instance in the Volta Region) (Kasanga & Kotey 2001; Aryeetey *et al.* 2007b).⁷ Although these figures are rough estimates, they underline the strong role of the customary system to date (Anyidoho *et al.* 2008; Ubink & Amanor 2008) and indicate that investors often have to negotiate with chiefs to acquire large land tracts. However, the fact that common law interests in land, like leasehold, can be allocated on a plot that falls under customary land points to the possible tensions arising from the dual system in modern times.

A multitude of 166 Acts and their ambiguity have been hampering an efficient formal land rights system and proper enforcement for decades (Quaye 2006), so people have become used to acting in legal grey areas (Interviews G15, G21). In 1999, this shortcomings were recognised by the National Land Policy (Republic of Ghana 1999) and led to the initiation of a Land Administration Project (LAP) with World Bank support in the year 2000 (Aryeetey *et al.* 2007a; Bugri 2012). A comprehensive legal framework is currently being developed. While the Office of the Administrator of Stool Lands Act (No. 481 of 1994) (Republic of Ghana 1994a) and the Lands Commission Act (No. 483 of 1994) (Republic of Ghana 2008a) have contributed to institutional clarity, the Land Use Planning Bill (Republic of Ghana 2011) is under review and the Land Bill is in a third draft stage (Republic of Ghana 2010). The Land Bill is expected to reconcile the customary and statutory systems and to improve land registration and the transparency of land transactions in order to reduce conflicts arising from overlapping claims, as well as fraud in the form of double registration and corruption (Interviews G15, G20, G21).

Given the population growth (from 20.6 million in 2003 to 25 million in 2011: World Bank 2013) and the growing number of land deals (Republic of Ghana 2012), the

increasing demand for land is putting pressure on the present land governance system (Interviews G15, G21, G32; Berry 2009; Tsikata & Yaro 2011).

Kenya

Up to today, Kenya has a dual system of land tenure – consisting of statutory and customary tenure with a multitude of (sometimes contradictory) statutes (Republic of Kenya 2009a) – that evolved over history. Before colonialism, several systems of land tenure existed in Kenya, most importantly the communal system of the Masai, the combined individual and familial system of the Kikuyu, and the feudal system of the Mumia kingdom (Alila *et al.* 1993).⁸

During colonial rule, a dual system of land administration was introduced: Statutory tenure for the most fertile land (mainly in the Rift Valley) that became known as the ‘white highlands’, vested in the Crown and occupied by the British, and customary tenure for ‘native reserves’ occupied by local people. Africans, especially Kikuyus, soon began to migrate to the Rift Valley in search of wage labour. This migration was further increased by population pressure in the reserves. Unrest in the reserves, especially the Mau Mau rebellion from the 1940s onwards, forced colonial authorities to open up the highlands to a re-Africanisation. This led to severe ethnic tensions that persist until today as settlement schemes, such as the ‘million-acre’ settlement scheme (Leo 1978), and land purchase programmes gave preference to Kikuyus over other tribes (Kanyinga 2009).

After independence the dual system of land tenure was maintained. Land remained a source of conflict, particularly in the case of ‘elite land grabbing’; that is, fraudulent allocation of public land to economically or politically influential people (Republic of Kenya 2004; O’Brien 2011; Manji 2012), or the 2007/2008 post-election violence that is thought to have been fuelled by land issues (Kanyinga 2009).

Today, there are three categories of land: public land (about 13% of the total land surface), private land (about 18%), and community land (about 67%) (Republic of Kenya 2004b).⁹ There are approximately six million titles on private land (stemming from both public and community land) (Interview K15) and a great deal of fraud surrounding them: often, there are numerous titles for one piece of land.

At the time of writing, Kenya is in the middle of a land law reform process (Manji 2012b). The policy road map is outlined in the National Land Policy of 2009 (Republic of Kenya 2009a) and in the new Constitution of 2010 (Republic of Kenya 2010a: Art. 60 (2); Glinz 2011) – high hopes are placed on both. However, this only partly enacted constitution adds to the confusion about land management, as old and new constitutions coexist.

The land governance that is called for in the new constitution and the National Land Policy has not yet been fully implemented. So far, three Acts concerning land have been revised and adopted since the new constitution was approved: The Land Registration Act (No. 3 of 2012),¹⁰ the National Land Commission Act (No. 5 of 2012),¹¹ and the Land Act (No. 6 of 2012)¹² (Republic of Kenya 2012a,b,c). However, the process has been hasty, engagement of legislators and citizens has been lacking, and the content falls short of expectations (Manji 2012b).

Even though pressure on land in Kenya is enormous, for example through population growth (from 33.8 million in 2003 to 41.6 million in 2011) (World Bank 2013) and elite land grabbing, little land is accessible to investors and thus land acquisitions by foreign investors play only a minor role and are concentrated in specific areas, such as the Tana River Delta, the Yala Swamp (like our example, Dominion Farms), and traditionally the area around Naivasha (for flowers) and Kericho (for tea).

The process of acquiring large tracts of land

Ghana

The first step is to identify available land. For this task, it is usual to engage local professionals with a wide-ranging network (Interviews G17, G19). Another possibility for foreigners is to approach the Ghana Investment Promotion Centre, which is currently improving a database capturing stool land offered for investment projects (Interviews G17, G19, G20; GIPC 2013).

As the majority of land in Ghana is customary land, potential investors have to negotiate in most cases with chiefs and paramount chiefs (Interviews G15, G17, G19; for examples: Schoneveld *et al.* 2011; Amanor 2012; Wisborg 2012; Berry 2013). By custom, the traditional council and the elders need to agree to negotiations

in order to guarantee checks and balances (Interviews G15, G29; Kasanga & Kotey 2001).

In the second step, the investor receives the site plan from the chief and must initiate a comprehensive search at the archives of the Lands Commission, to check that the negotiating party is the legal owner and that there are not multiple claims on the land (Interviews G20, G21, G27; Republic of Ghana 2008a). Further checks with the Town and Country Planning Department are necessary to ascertain whether the land is available for the intended economic activity (Interviews G20, G30; Republic of Ghana 1993). However, this is a rather fuzzy and not entirely clear procedure.

A licensed surveyor is then engaged to map the land (Interviews G16, G27; Republic of Ghana 1986). According to custom, negotiations are concluded with the payment of ‘drink money’ (Interviews G15, G20, G29; Ubink & Quan 2008). This term originally meant a physical drink but now is converted into financial terms and symbolises asking permission to approach the chief in good will (Interviews G3, G29; Amanor 2010). With growing pressure on land the amount of the ‘drink money’ is increasing and translates to a substantial part of the acquisition costs (Interviews G15, G20, G29; Ubink & Quan 2008).

Once details have been agreed upon, the documents have to be handed in to the Regional Lands Commission to process the registration. If the land is located around Accra or Kumasi a title can be issued; in other parts of Ghana only deed registration is available (Interviews G16, G20; Kasanga & Kotey 2001). Title registration is therefore conditional on announcing the transaction details at the site itself, at the respective district assembly and at the Regional Lands Commission. When 21 days have passed without any objection being raised, the registration process can be completed (Interview G16; Republic of Ghana 1986).

The annual rent, which is confirmed by the Lands Commission in the leasehold, will be paid to the Office of the Administrator of Stool Lands (Interviews G12, G23; Republic of Ghana 1994a). This authority charges a 10% administrative fee. The rent is disbursed as follows: 55% to the district assembly, 25% to the chief and 20% to the traditional council (Interviews G12, G21, G23; Republic of Ghana 1994a).

After a land lease has finally been issued, an Environmental Impact Assessment (EIA) is mandatory. Actors such as the Environmental Protection Agency and the Water Resource Commission thus have a say in regulating future land use (Interviews G15, G31; Republic of Ghana 1994b, 1996).

This is the typical procedure for acquiring customary land. When it comes to state land, the Lands Commission takes the position of the chief as it is mandated to manage public and vested lands; it also collects the rents (Interviews G16, G20; Kasanga & Kotey 2001). Investors therefore often favour state land as fewer actors are involved in the process and as this land is thought to offer higher tenure security (Interviews G15, G20). However, apart from land belonging to some divested state-owned companies, there is usually no state land available for investors (Interviews G19, G28).

In principle, the acquisition process is straightforward but in practice there are several weaknesses. First and foremost, there is no guarantee that investors will follow this procedure before they start operations. Schoneveld *et al.* (2011), for instance, find that most bio-fuel related investments in the Brong Ahafo Region started operations without having an issued lease. There are two reasons for this: on the one hand, land administration is slow and cumbersome (Interviews G13, G15, G18; Kasanga & Kotey 2001); on the other, if chiefs and investors agree on a deal they do not see the need to bring in state institutions and rather prefer to save costs (Interview G13). This is especially attractive for chiefs as they can collect the rents directly without sharing them.

Since transactions of customary land are private transactions under civil law, several problems arise (Interviews G15, G20; Republic of Ghana 1992; Ubink & Quan 2008). The state has (given the present legislation) no power to interfere and design contracts (Interviews G20, G21). It is up to the chiefs and the traditional councils (and the investors) to decide whether they will seek free, prior and informed consent, so the local population is at risk of hearing about a deal only after the negotiation has been concluded (Interviews G15, G21). In addition, information about sustainable land prices ('drink money'), land rents and other negotiable benefits, such as local employment quotas, contract farming schemes, equity shares, or corporate social responsibility, are usually not available to negotiating chiefs (Interview G15).

Moreover, de facto accountability can be weak, so it is up to the chiefs whether they disclose the amount and the intended use of the ‘drink money’ (Interviews G15, G20; Berry 2013).

Regardless of whether customary or state land is in question, another weakness can be identified at the administrative level. Since computerisation is underdeveloped in Ghana, processing documents is time intensive (Interviews G16, G18, G21; World Bank 2003). In addition, monitoring and sanctioning of regulations remains a challenge due to a lack of personal and financial resources (Interview G33; Environmental Protection Agency 2010; for the mining sector see Domfeh 2003). Therefore suitable grounds exist for offers of ‘speed money’, and rent-seeking exists at various levels, fostering fraud such as multiple sales of land or incomplete registration.

How these potential weaknesses translate into acquisition practice can be exemplified by the case of the Ghana Oil Palm Development Company (GOPDC). This leading palm oil producer is the biggest company in Kwaebibirem District, a remote area in the Eastern Region of Ghana. It was established as a state-owned company in 1976 on an area of 8,953 hectares, known as the Kwaee Concession (Registered Leasehold No. 1258/1976).¹³ In the wave of liberalisation, GOPDC was privatised in 1995 and the 50 years leasehold (Republic of Ghana 1976) was divested to the Belgian investor *Société d’Investissement pour l’Agriculture Tropicale*, which took over the majority of shares (SIAT 2013; GOPDC 2013).¹⁴ In 2000, GOPDC acquired a second concession, the Okumaning Concession, covering 5,205 hectares of vested land which were leased for 50 years. The original acquisition by the government (also in 1976) took place under the Administration of Lands Act (No. 123 of 1962) from Okumaning, Takworase, and Kusi stools (Registered Deed RE 2538/2008).

The difficulty with acquisitions of vested land under Act No. 123 of 1962 is the creation of overlapping interests in land, as mentioned earlier. The allodial titles remain in the hands of the chiefs, while management functions are acquired by the state and in this case were leased out to GOPDC. In this regard, GOPDC took over the assets and liabilities and thus the duty to compensate everybody who lived and farmed at the concession.

People living in this sparsely populated area were predominantly migrants. As they were not bound to the land by social ties, they rejected a resettlement plan suggested by GOPDC and favoured cash compensation (AY & A Consult 2007; Interview G3; FGD G4). Consequently, the Land Valuation Board surveyed crops and housing structures but not the land itself (Interviews G1–G3, G7, G14; FGDs G4–G10). This was because GOPDC already possessed a land lease contract and because the migrants had neither statutory nor ancestral rights to use the land (Kobo, 2010). The whole process, beginning with information and sensitisation, was characterised by an absence of transparency, and many irregularities and delays.

Our focus group discussions revealed a lack of free, prior, and informed consent. While some people had been informed in a meeting with GOPDC (FGD G1), others only became aware of the acquisition due to the valuation activities of the Land Valuation Board (FGD G9) or only heard about the investment project from their chiefs (FGD G8). Altogether, the role of chiefs is very complex: they negotiate corporate social responsibility activities with GOPDC (Interviews G1, G2, G14) and are highly appreciated (Interview G15). Nevertheless, considering that some chiefs have misused their position to bargain for personal benefits, and that they collect rents for the same land (the Okumaning Concession) from different actors (GOPDC and migrants), criticism has been widely expressed (Interview G7; FGDs G4, G5, G7, G9).

Other mandatory legal procedures were followed overall by GOPDC, although there may have been a few exceptions where they did not comply. For example, quarterly reports are sent to the Environmental Protection Agency on issues such as the treatment of the mill's effluent according to the Environmental Management Plan (Interviews G31, G33) and according to the Agency the Company was fined once, several years ago (Interviews G31, G33). The Company acquires the necessary water permits on a regular basis, but the Water Resource Commission stated that there had once been a few months delay in the renewal of the permit (Interview G31).

Kenya

The ongoing land reform process in Kenya is expected to effect changes in the process of acquiring land. While it still follows the old legislation (prior to the new Constitution of 2010), major changes in this process will be effected once the new

constitution is fully implemented. For instance, the following key issues are addressed in the new constitution (but at the time of writing had not been acted upon): (i) foreigners are no longer allowed to own land but can only take leases and the time period of a lease is limited to 99 years (Republic of Kenya 2010a: Art. 65 (1); Glinz 2011), and (ii) a ceiling for the amount of land one can hold is to be discussed (Republic of Kenya 2010a: Art. 68c). We concentrate on the old process, which was still in place at the time of writing, but give a foretaste of intended changes.

The government encourages investors in agriculture and facilitates the process through the Kenya Investment Authority (Interviews K8, K23). Investors usually take long-term leases to secure access to land for up to 99 years (Interview K3). Who the investor will negotiate with depends on the type of land targeted.

For public land, the government allocates land according to the Government Lands Act (Cap 280 of 2010) and the Trust Lands Act (Cap 288 of 2009). However, these procedures have been widely ignored in practice, thus irregular and illegal allocations of public land are common (Republic of Kenya 2004a, 2009a,b, 2010b; O'Brien 2011). Acquisitions of public land will change according to the National Land Commission Act (Republic of Kenya 2012b), which stipulates the creation of a National Land Commission. This Commission will be in charge of administering public land. The former President Kibaki and Prime Minister Odinga have nominated members (Ndegwa 2012) and – under pressure – have officially announced the Commission (allAfrica.com 2013; Limo 2013).

For community land, the county council or another mandated institution negotiates with the investor. These local authorities are also entrusted with informing the involved local population. However, whether the population is informed about an investment largely depends on individuals in these institutions (Interview K23), as the National Land Policy states: 'In addition, it [the institutional framework] does not adequately involve the public in decision making with respect to land administration and management, and is thus unaccountable' (Republic of Kenya 2009a). Until 2015, the new constitution stipulates that the Community Land Bill – which is available in a zero draft version – must be enacted (Republic of Kenya 2011). Administration of community land is then to be handled by community land boards.

For private land the case is – in comparison – unproblematic, as negotiations are held with the former owner (Interview K3); leaving aside fraudulent land titles, the former ownership of private land is clear-cut. Investor and former owner (i.e. government, private owner, or communal authority) have to agree on a price, the ‘stand premium’, to be paid to the former owner. This price should reflect the value of the land but is negotiable. In addition, the investor has to pay an annual ground rent that is based on an official evaluation of the land, done by the Ministry of Lands. In the case of public land, an annual ground rent has to be paid to the government and in the case of community land to local authorities. On top of this, numerous statutory fees accrue in the process (Interviews K18, K19).

In all cases of investment in land – public, community, or private – the Ministry of Lands has to approve the transaction, register the land, and issue a lease certificate. Once the lease has been taken and before the project actually starts, the investor has to undertake an Environmental Impact Assessment (EIA) with the National Environment Management Authority (Interview K5). The EIA includes social aspects, and involves the adjacent population. It has to make a clear statement of expected impacts and mitigation measures. The Water Resources Management Authority handles water usage rights and water licenses (Interview K21).

This system has many caveats and loopholes: enforcement of formal registration and contract fixing procedures is poor and even official documents recognise corruption in land allocation (Republic of Kenya 2009a). In particular, acquisitions are prone to cause conflict if public or community land is targeted. Acquisitions of public land have a historical legacy in Kenya due to illegal allocations of such land (Interview K15; O’Brien 2011). Community land is handled by mandated institutions that have often neglected their duty of informing local land users about land acquisitions. In both cases problems have been identified and addressed by the National Land Commission Act (Republic of Kenya 2012b) and the – still to be enacted – Community Land Bill (Republic of Kenya 2011). Moreover, enforcement of control mechanisms, such as the EIA, is weak due to a lack of financial and personal resources (Interviews K13, K17, K19).

As a result of the tedious official process and a confusing legal situation, many investments skip official procedures and come into the country through high-level

personal contacts (Interviews K15, K23). For instance, there is the case of a Qatari investment that was negotiated on the government level. Public pressure caused this deal to fail (Interviews K4, K15, K23).

Similarly, the large-scale rice farm Dominion Farms, is ‘an investor who came in through the back door’ (Interview K15) and exhibited a rather unusual way of entering the country. Dominion Farms is located in the area of Siaya and Bondo District in Nyanza Province. The community land is held in trust by the respective county councils. Formerly, seasonal flooding meant that the swampland adjacent to Lake Victoria could only be used seasonally and few people were living on the land. The community used the land for grazing animals, fishing, and agriculture in the dry season.

Local authorities have had plans to develop the swampland for agriculture for a long time; however, all former projects had failed (Interviews K11, K12, K14). Dominion Farms, a privately held US-investment, took over the land from the parastatal Lake Basin Development Authority in 2003 (Interview K12). Dominion holds a 25 year lease of 6,900 hectares that it has gradually been reclaiming, with about 1,500 hectares being in use in 2011 (Interview K9). The owner claims God sent him to Africa to help poor people (Interview K9). When Dominion first came to Kenya, the owner looked for support in the highest political ranks of the country and approached Oburo Odinga, Member of Parliament for the region at the time. Odinga approved the investment and linked Dominion up with the Investment Promotion Centre. This in turn facilitated contact with the county councils (Interviews K16, K25). In 2003, Dominion signed a Memorandum of Understanding with the County Council of Siaya and the County Council of Bondo (Dominion Farms, County Council of Bondo, & County Council of Siaya 2003).

The local community was informed through church channels – in the words of one interviewee, ‘they used religion to manifest the investment’ (Interview K16). The owner went into partnership with a local priest and held services in the area to inform the population about the project (Interview K10; FGDs K3, K7). This priest later became MP in Kisumu Town – some claim through support and for the benefit of Dominion (Interview K15). In general, information on consultations and compensations is scarce.

Whether Dominion complied with the law when they negotiated the Memorandum of Understanding and whether they did their EIAs as required is impossible to reconstruct from hindsight. Dominion and the National Environment Management Authority claim that EIAs were conducted in an orderly manner (Interviews K9, K11–K13, K17, K24, K25). However, others argue that EIAs were not done properly. Accusations have been made that official documents on public consultation were prepared in retrospect (Interview K16) or that officials were bribed (Interview K15).

Selected outcomes of the game

GOPDC

In the case of GOPDC, resentment against the acquisition of the Okumaning Concession is widespread (FGDs G1–G12). In particular, participants of FGDs see the following negative immediate impacts: decreasing access to agricultural land (FGDs G1–G12), and low and late compensation (FGDs G1–G10). Moreover, as compensation was not paid for the land itself, the amounts calculated by the Land Valuation Board were inadequate to restore the migrants' livelihoods (FGDs G1–G8, G10). Furthermore, people who used to live or farm at Okumaning Concession reported that after they had left the land, five years went by before compensation was paid (FGDs G1, G4–G9).¹⁵ The fact that people only received a check with the aggregated sum (FGDs G2–G7, G10) increased the suspicion that they were being tricked by their own government.

In terms of medium- to long-term impacts, participants criticise low wages (FGDs G1–G3, G11), casual labour contracts (FGDs G1–G3, G5, G7, G11), low corporate social responsibility (FGDs G1–G12), increased food prices in the area (FGDs G1–G12), and low retail prices for fresh oil palm fruit (Interview G5; FGDs G11, G12).

Nonetheless, in most of the focus group discussions participants did not deny they had received benefits like employment creation (FGDs G1–G4, G7–G12), better road infrastructure (FGDs G1–G4, G7, G8, G10–G12), electricity (FGDs G1–G4, G7, G8, G12), and improved health and schooling facilities (FGDs G1–G8, G10–G12).

Since GOPDC extended production, conflicts have accrued: in the beginning, the land of the Kwaie Concession seemed ample, but as soon as areas closer to villages

were affected by the investment, tensions arose with neighbouring communities (Interview G8; FGD G12). The Company responded by establishing a smallholder scheme for those who had lost their farms (Interviews G7, G8; FGD G12). In order to run the mill efficiently and foster economic integration, the Company also increased its access to fresh oil palm fruit by contracting outgrower farmers¹⁶ (who could prove that they would have secure land use rights for at least 25 years, the period of the contract) (Interviews G5, G6). The Company also made purchases from independent farmers. With its nucleus-estate system with more than 2,000 plantation workers, 200 smallholders, and more than 7,000 outgrowers, GOPDC is identified as a driver of development in the region (Interviews G1–G3, G10, G11, G13, G14; FGDs G1–G4, G7, G8, G10–G12).

However, criticism is not limited to GOPDC but includes the chiefs and the government. As a focus group participant said, ‘the chief has misled [us], the investor could not know. A portion of blame can be also given to the government’ (FGD G4). Given the important role of the chief, it is obvious that benefits for the local population are not institutionalised but rather depend on the chief’s goodwill and his capacity to negotiate.

Dominion Farms

In the Kenyan investment case, the most pertinent immediate impact is the loss of access to land. The land Dominion uses is no longer available for pastoral activities, fishing, and seasonal agriculture during the dry months. Furthermore, more and more people move into the now arable areas once the land has been cleared and drained by the company. When Dominion then starts claiming the land for its own use these people are driven out.

Adverse medium- to long-term impacts, such as food insecurity, and damage to health caused by chemicals and working in the rice fields, are mentioned by participants in all our FGDs. While statements like ‘Of course Dominion is very negative – that I have no doubt about – when they came they were good but they have kept on deteriorating year by year’ (FGD K5) were frequent in conversations with affected communities, positive impacts could not be denied at the same time. Long-term improvements in employment, and in infrastructure, such as roads, electricity, health centres, and schools, were named in particular (Interviews K10–

K12; FGDs K1–K8). According to the season, between 200 and 1,600 casual, contract, and permanent employees are working for Dominion (Interviews K9, K14).

Heavy resistance from community members (see for example Ochieng 2011) has worsened over the last years. In the beginning, enthusiasm about Dominion Farms – clearly the most influential project in the region – was the dominant view. However, once the project moved from construction to actual farming activities, less employment than expected was generated and frustration set in. For instance, one participant in a focus group discussion claimed that ‘the negativity came in 2006 during the transition between construction and farming when most of the workers became redundant and they could not all continue working with Dominion’ (FGD K8). Many blame Dominion for this messy situation; others hold the government responsible, as a focus group discussion participant observed: ‘So it is worth saying that Dominion did not grab our land but the government, because the government took our land and gave it to foreigners’ (FGD K1).

COMPARATIVE ANALYSIS AND SYNTHESIS

To align our analysis with the conceptual framework, we start with a brief systematic comparison between Ghana and Kenya. The stepwise analysis shows that the land legislation in both countries is not clear-cut, and thus the implementation of formal land laws is very loose. Many actors who acquire land operate in the legal grey areas. This is a consequence of ambiguous land tenure systems with weak monitoring and sanctioning mechanisms. Hence, in both cases, official legal procedures are not necessarily followed. This is exemplified by the cases GOPDC and Dominion Farms, which produced outcomes perceived as ranging from very negative to positive. While we cannot describe the full impact of large-scale agricultural projects (with regard to social differentiation or different time horizons), we can elucidate underlying causal mechanisms by looking at our findings in greater detail against the conceptual framework.

With respect to informal institutions, the Ghanaian system is backed by strong customary rules that are widely accepted by the society. Nevertheless, some traditional authorities’ behaviour when it comes to leasing out large land tracts is heavily debated and criticised. This indicates that informal institutions are under

pressure, which might lead to slow shifting of the rules. In Kenya, the customary system is much weaker. However, elite rule as an informal way of governing land is coming under increasing pressure.

In both case study countries, land is not solely a production factor but also connected with cultural identity and religious beliefs. Land issues are complex, and thus a consensus-based change in the formal institutions is also complex. However, both countries show signs of transition: the Lands Commission of Ghana is currently drafting a new land bill in order to coordinate its different and partly overlapping pieces of land legislation (Republic of Ghana 2010). The same holds for Kenya, which has enacted – and is currently implementing – a new constitution addressing important aspects of land (Republic of Kenya 2010a). The first steps towards reform have been taken, but it is not yet clear whether the reform will be implemented completely. In Kenya, for instance, the fear has been expressed that established elites will keep the old institutions alive despite the new constitution (Boone 2012; Interviews K15, K20). Similarly, the Ghanaian civil society fears that those in power have intentionally withheld the Draft Bill until 2013 in order to hold on to the power guaranteed by the present system (Interview G15).

As first and second level institutions are changing to different degrees, we analyse which set of rules investors follow when ‘playing the land game’ (third level). As there is no clear guidance by the governing institutions (first and second level) and as the correct procedure is time intensive, some investors bypass formal institutions. Foreign investors do not know how to move in the legal grey areas: they lack the tacit knowledge required to adhere to informal institutions or make strategic use of them (which might be an advantage enjoyed by domestic investors). Thus, they are tempted to engage with local professionals or to enter the ‘land game’ through unknown, dubious channels. This can provoke popular outrage if unveiled (as happened in the Qatari case mentioned above). Overall, the current ‘game’ of large-scale land acquisitions in Ghana and Kenya is played in a de facto ‘institutional self-service shop’: investors decide themselves how they will enter the country depending on the discretion for action allowed by the host country’s key actors, such as high-level politicians, civil servants in land- and environment-related agencies, businessmen, or traditional authorities.

Consequently, analysis on the fourth level reveals that outcomes are diverse and range from positive to very negative. We assume that they are arbitrary depending on the investor's strategy as well as on the above-mentioned key actors. Accordingly, investors have substantial influence on crucial aspects, such as informing the local population, being environmentally accountable and distributing factor inputs including labour and produce. This can lead to insufficient consultation of the local communities. Those being worst affected by negative impacts are dissatisfied as they are often left out of the whole process. This discontent may in turn contribute to a shift in first and second level institutions (at least in countries with a democratic orientation and an active civil society, such as Ghana and Kenya). We can thus assert that large-scale land acquisitions can fuel institutional change.

Hence we can say in summary that it is not only the land governance system that shapes land deals but also the reverse: high numbers of large-scale land acquisitions put the land governance system under pressure to change; or, put differently, they have a feedback effect on the system.

CONCLUSIONS

We can summarise four main findings of our comparative embedded case studies as follows:

Firstly, an examination of procedures followed in large-scale land acquisitions reveals the present land governance system as inadequate to cope with the increasing pressure on land resources. The present systems are a result of the recognition of pre-colonial customary land tenure systems and statutory laws introduced by colonial powers, which were partly amended and adjusted for by post-independence rulers. Notwithstanding the intense wave of reform since the 1990s, in both countries the system is still a collection of miscellaneous rules and regulations with overlaps and loopholes, rather than a consistent legal framework. Against the global trend of increasing pressure on land resources, the present systems seem to be poorly designed to cope with these challenges. To address this problem, continuous effort to pursue the institutional reform processes is therefore crucial.

Secondly, the procedure generally followed (de facto) does not conform to the procedure laid down by the legislation (de jure). This is partly because the legislation is confusing, and partly because the formal rules are poorly implemented and enforced. Poor enforcement is a consequence of understaffed and underfinanced government institutions and low institutional capacity. In both countries, the lack of a computerised land registry is one of the main reasons for ‘skipping the queue’ and other illegal actions, which clearly contravene the legislation. We suggest not only technical reform, but also far-reaching capacity development at all levels to overcome these challenges.

Thirdly, investors determine to a large extent how their specific project affects the host country. This is because the land governance system is too weak to deal with the heavy pressure on land. Thus, the impacts of a project are arbitrary, as neither are the rules well-defined nor is their implementation guaranteed. Benefits for the host country and the local population therefore depend very largely on the behaviour of the particular investor – given that those in charge of enforcing regulations allow investors such liberty. Therefore, we recommend additionally supporting the implementation of international guidelines, as set out in the Voluntary Guidelines on Responsible Governance of Tenure, Land, Fisheries, and Forests (FAO 2012) or the AU Framework & Guidelines on Land Policy in Africa (AU 2010). This could be an important step towards fostering investors’ commitment to sustainable investment practices.

Finally, investors’ actions have repercussions for the land governance system in the host country. The weak governance system allows investors considerable leverage. Some may misuse the ‘institutional self-service shop’ to find loopholes to escape regulations. Such behaviour encourages rent-seeking and elite capture at all levels. Even though both phenomena are not new, they have become so widespread as to provoke resistance by the local population, civil society organisations, and the international community. In the recent past, projects first failed because of local protest. In this regard, the pressure on the land governance system is increased not only by the rising demand for land, but also by the growing dissatisfaction of the excluded local population and investors who fear that conflicts will hinder operations. Hence, large-scale land acquisitions can trigger institutional reform of both the formal and the informal institutions that govern a land tenure system.

Taking into account, that a shift in formal institutions improves ‘the rules of the game’ only if it is supported by informal institutions, we see awareness creation, including public education and open discourse, as important for changing mindsets.

Although we found variations in the way the large-scale agricultural projects in our case studies were implemented, we identified similar problems for both countries which we believe to be applicable for a larger set of land deals. Acknowledging that investors’ actions have repercussions for the land governance system, we suggest there may be a window of opportunity here for policy makers, investors, and the local population to discuss the land governance system and shift its parameters towards more efficiency, given the sub-optimal outcomes of many land deals. However, from a scientific point of view, more research is needed to fully understand how the recent investment boom in agricultural land shifts the future investment climate and the underlying regulatory framework.

1. The term “land grab” is widely used in media and NGOs, development organizations prefer terms such as “land-based investment”, or “agricultural investment”. While every term implies a certain stance in the debate, we refrain from using them and settle on neutral terms like “large-scale land acquisition”, “land deal” or simply “project”.

2. The topic is now appearing in many academic journals like the *Journal of Peasant Studies*, including several special issues: e.g. *Development and Change* (2013, Vol. 44, 2), *Globalizations* (2013, Vol. 10, 1), *Development* (2011, Vol. 54, 1). An overview of growing evidence is provided by Cotula (2013).

3. In choosing these countries, we aimed for close similarity with regard to contextual factors that are expected to have an influence on the not yet well understood phenomenon of large-scale land acquisitions (Dion 1998). Ghana and Kenya largely satisfy this condition, as they are both important targets of land acquisitions in Africa (Anseeuw et al. 2012). They claim leadership in their respective regional economic communities and have a reasonable degree of macro-economic stability with access to the sea (Mehler et al. 2012). Both are former British colonies and have inherited comparable institutional settings (Republic of Ghana 1999; Republic of Kenya 2009a). In addition, the coexistence of statutory and customary laws marks their land governance systems, which are both undergoing institutional change (Republic of Ghana 2010; Republic of Kenya 2010a). However, there are a number of important differences. For instance, their customary systems differ: while land allocation via the chieftaincy system is still crucial for Ghana (Ray 1996; Kasanga & Kotey 2001), common property based systems play rather a minor role for Kenya. Also, our case studies within the countries are located in diverse environments: The Ghanaian case is situated in a tropical forest zone with comparatively high population densities, while the Kenyan case is located within a wetland with comparatively low population densities.

4. Williamson calls the fourth level the ‘resource allocation and employment’ level. Here, neoclassical analysis, in particular analysis of adjustments to prices and outputs and agency theory are typically employed in a marginal analysis.

5. The term ‘interest in land’ means a bundle of property rights associated with ownership which is in the Ghanaian land tenure system not necessarily clearly distinct and exclusive (cf. Kasanga & Kotey 2001).

6. A ‘stool’ is the seat of a chief (or head of a family) of an indigenous group. It represents a source of authority, a symbol of unity and its responsibilities devolve upon its living representatives. Land owned by such a group is referred to as ‘stool land’ (Republic of Ghana 1999). A ‘skin’ in northern Ghana is equivalent to a ‘stool’ in southern Ghana.

7. The present constitution also recognises private land under common law under the category of customary land because it originates from gift or sale by the allodial right holder before 1992. A freehold title under common law can be held only by Ghanaians (Republic of Ghana 1992: Art. 266 (2)).

8. For more detailed accounts of the Kenyan land tenure system and conflicts with regard to the 'land question' see Syagga (2006, 2011), Kanyinga (2009), and Berman & Lonsdale (1992a,b).

9. These categories emerged historically. In the colonial days, Kenya had only crown land and reserve land. The Swynnerton Plan of 1954 paved the way for a nation-wide land registration enacted under the Native Land Tenure Rules of 1956 and thus introduced private land (derived from both crown and reserve land and its successors) (Shipton 1988). Since then, Kenyans have been able to register land. At independence, crown and reserve land were renamed government and trust land. With the new constitution, government land became public land and trust land became community land.

10. The Land Registration Act revises, consolidates and rationalises the registration of land titles. It repeals the numerous Acts that have been created over the time: the Indian Transfer of Property Act 1882, the Government Lands Act, (Cap 280), the Registration of Titles Act, (Cap 281), the Land Titles Act, (Chapter 282), and the Registered Land Act, (Cap. 300) (Republic of Kenya, 2012a).

11. The National Land Commission Act stipulates the creation of the National Land Commission (NLC) in charge of administering public land (Republic of Kenya 2012b). See also chapter 4.2.2.

12. The Land Act revises, consolidates and rationalises land laws. It repeals the Wayleaves Act, Cap. 292 and the Land Acquisition Act, Cap. 295 (Republic of Kenya 2012c).

13. The land was expropriated from the stools of Kwae, Asuom, Anweam, and Mintah under the State Lands Act (No. 125 of 1962) by the Government of Ghana to develop the area (Interviews G7, G14). As land acquisitions under this Act are ultimate, the stool land was finally transformed into public land. Under the military rule of the late 1970s, compensation of the stools as allodial right holders and individual land users with lesser interests like customary freehold or sharecropping arrangements (cf. Amanor 2001) was erratic (Interview G7). Officials dealt arbitrarily with compensations for farmland and cultivated crops. At the same time compensation for the use of communal forest resources was not paid at all (FGDs G11, G12). However, after more than three decades the acquisition process cannot be exactly reconstructed.

14. Even though GOPDC had the legal right to use the land for which it pays ground rent to the Lands Commission, it abstained from using 2,343 hectares of its 8,359 hectares concession because further expansion would have required the destruction of old-established villages and the Apam shrine, a cultural heritage (Interview G7).

15. According to the Lands Commission, inflationary adjustment took place for delayed payments, but we were unable to gain detailed information on this.

16. We define 'outgrowers' as farmers who enter into a contract with GOPDC for a period of 25 years. While the Company offers inputs, credit, and extension, the outgrower contributes labor and land. This land is either owned or leased for 25 years. In case of a lease, the landlord also has to sign the contract. In contrast, GOPDC also provides the land for participants in the smallholder schemes.

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Interviews[†]

- G1, traditional authority (m), Kwaebibirem District, 27/10/2011.
- G2, traditional authority (m), Kwaebibirem District, 04/11/2011.
- G3, traditional authority (m), Kwaebibirem District, 04/11/2011.
- G4, Manager a, GOPDC (m), Kwaebibirem District, 08/11/2011.
- G5, Executives outgrowers association (m), Kwaebibirem District, 09/11/2011.
- G6, Manager b, GOPDC (m), Kwaebibirem District, 09/11/2011.
- G7, Manager c, GOPDC (m), Kwaebibirem District, 09/11/2011.
- G8, Manager d, GOPDC (m), Kwaebibirem District, 09/11/2011.
- G9, Manager d, GOPDC (m), Kwaebibirem District, 09/11/2011.
- G10, Snr. Official, District Assembly (m), Kade, 10/11/2011.
- G11, Middle men (m), New Abirem, 10/11/2011.
- G12, Official, Office of the Administrator of Stool Lands (m), Kade, 11/11/2011.
- G13, Snr. official a, Ministry of Food and Agric. (m), Kade, 11/11/2011.
- G14, Traditional authority d (m), Kwaebibirem Dist., 12/11/2011.
- G15, Representative, civil society (f), Accra, 14/11/2011.
- G16, Snr. official a, Lands Commission (f), Accra, 15/11/2011.
- G17, Official, Ministry of Food and Agric. (m), Accra, 16/11/2011.
- G18, Snr. official a, Land Administration Project (m), Accra, 17/11/2011.
- G19, Official, Ghana Investment Promotion Centre (m), Accra, 17/11/2011.
- G20, Snr. official b, Lands Commission (m), Accra, 17 & 22/11/2011.
- G21, Snr. official c, Lands Commission (m), Accra, 18/11/2011.
- G23, Snr. Official, Office of the Administrator of Stool Land (f), Accra, 18/11/2011.
- G27, Snr. official d, Lands Commission (m), Accra, 22.11.2011.
- G28, Snr. official b, Ministry of Food and Agric. (f), Accra, 23/11/2011.
- G29, Snr. Official, House of Chiefs (m), Accra, 24/11/2011.
- G30, Expert, Town and Country Planning Dep. (m), Accra, 24/11/2011.
- G31, Official, Water Resource Commission (f), Accra, 25/11/2011.
- G32, Professor, University of Ghana (m), Accra, 28/11/2011.
- G33, Snr. Official, Environmental Protection Agency (m), Accra, 29/11/2011.

[†] m = male; f = female.

K3, Snr. official, Promotion of Private Sector Development in Agriculture (m), Nairobi, 14/09/2011.
 K4, Snr. official a, Kenya Investment Authority (m), Nairobi, 15/09/2011.
 K5, Snr. official b, Kenya Investment Authority (m), Nairobi, 15/09/2011.
 K8, Snr. official, Ministry of Lands (f), Nairobi, 16/09/2011.
 K9, General manager, Dominion Farms (m), Siaya, 20/09/2011.
 K10, Chief, Government of Kenya (m), Siaya, 27/09/2011.
 K11, Extension officer, Ministry of Agriculture (f), Siaya, 28/09/2011.
 K12, Snr. official, County Council Siaya (m), Siaya, 28/09/2011.
 K13, Fields officer, National Environment Management Authority (f), Siaya, 30/09/2011.
 K14, Human resources officer, Dominion Farms (f), Siaya, 30/09/2011.
 K15, Snr. official, Kenya Land Alliance (m), Nakuru, 03/10/2011.
 K16, Lawyer, Institute for Law and Environmental Governance (m), Nairobi, 07/10/2011.
 K17, Official, National Environment Management Authority (f), Nairobi, 10/10/2011.
 K18, Official, Evaluation Department Ministry of Lands (m), Nairobi, 10/10/2011.
 K19, Official, Registration Department Ministry of Lands (f), Nairobi, 11/10/2011.
 K20, Surveyor, Land Development & Governance Institute (m), Nairobi, 11/10/2011.
 K21, Snr. official, Water Conservation and Control, Water Resource Management Authority (m), Nairobi, 11/10/2011.
 K23, Snr. official b, Ministry of Agriculture (f), Nairobi, 13/10/2011.
 K24, Snr. official c, Ministry of Agriculture (m), Nairobi, 14/10/2011.
 K25, Former Snr. official, Investment Promotion Center (m), Nairobi, 15/10/2011.

Focus Group Discussions[‡]

G1, Group of casual workers (slashing), GOPDC, Okumaning, 26/09/2011.
 G2, Group of permanent employees, GOPDC, Okumaning, 27/09/2011.
 G3, Group of casual workers (harvesting), GOPDC, Okumaning, 27/09/2011.
 G4, Group of rich before they received compensation, Okumaning, 27/09/2011.

[‡] Each group set out to have between 7 and 15 participants. To reduce hierarchy within the groups, we divided the participants into groups according to their perceived wealth level, as well as their age (youth groups up to the age of 35). For employees of the investor, we used the employment position to form different groups among casual staff, contract workers, and permanent staff.

Vulnerable in Ghana: no house or only a small structure, none or few domestic animals, no bicycle, none or only a small piece of land.

Vulnerable in Kenya: no house or only a small house, no domestic animals, no bicycle, only a small piece of land, use of hoe to cultivate, children not going to school.

Average in Ghana: medium sized house, few animals, bicycle, school attendance at primary and at often junior secondary level, little land ownership, but cultivation of several plots under sharecropping.

Average in Kenya: semi-permanent house (mud and then plastered), few animals, bicycle, children go to a poor quality school, at least two acres of land, use of ox-plough.

Wealthier

Average in Ghana: big house, more animals, motorbike or car, often fewer children, more extensive land ownership, cultivation of more than five plots, often additional sources of income from non-farm activities.

Average in Kenya: brick house, many cattle, motorbike, one wife, few children, children go to a good school, five acres and above, use of tractor or ox-plough.

G5, Youth, Aboabo, 28/09/2011.
G6, Group of average, Aboabo, 28/09/2011.
G7, Group of vulnerable, Okumaning, 31/10/2011.
G8, Group of average, Okumaning, 31/10/2011.
G9, Group of those to be compensated, Congo, 01/11/2011.
G10, Mixed group: Average & wealthier, Okumaning, 01/11/2011.
G11, Group of outgrowers, Asuom, 01/11/2011.
G12, Group of smallholders, Kwae, 01/11/2011.
K1, Group of vulnerable, Kadenge, 22/09/2011.
K2, Mixed group: Vulnerable & average, Kadenge, 23/09/2011.
K3, Group of average, Kadenge, 23/09/2011.
K4, Group of wealthier, Kadenge, 27/09/2011.
K5, Youth group, Kadenge, 27/09/2011.
K6, Group of casual workers, Dominion Farms, Siaya, 29/09/2011.
K7, Group of contract workers, Dominion Farms, Siaya, 29/09/2011.
K8, Group of permanent employees, Dominion Farms, Siaya, 30/09/2011.

Large-Scale Land Investment and Rural Social Differentiation:

A Case Study from Ghana

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ABSTRACT *Outcomes of large-scale land investments in developing countries often seem arbitrary. This study uses a conceptual framework inspired by the work of Elinor Ostrom to explain why outcomes for the local population vary greatly between and within investment cases. It uses qualitative analyses of an oil palm investment in Ghana to show how a large-scale investment affected neighbouring communities, permanent and casual employees and contract farmers, with outcomes ranging from very negative to positive. To mitigate social differentiation, I recommend corrective measures to improve contextual factors and make land deals transparent and investments sustainable.*

Keywords: land; large-scale investment; Ghana; new institutional economics; social differentiation

1. Introduction

From the perspective of neoclassical economic theory, large-scale investments in agricultural land seem to be a perfect match of demand and supply. Public and private investors worldwide are looking for large land tracts. Their search is driven by factors such as population growth, changing diets, desertification, urbanisation and water shortages; by the increasing demand for raw materials (such as forest products), renewable energy sources and ecosystem services; and by space requirements for eco-tourism and speculative investment (Cotula et al., 2009; von Braun and Meinzen-Dick, 2009; Zoomers, 2010; Cotula and Vermeulen, 2011a; Cotula et al., 2011b; Deininger et al., 2011). At the same time, governments and local elites in developing countries are willing to offer the vital production factor *land* in order to foster commercialisation of their agricultural sectors, overcome persistent underinvestment in rural economies, and increase employment, infrastructure endowment, technology transfer and tax income (Cotula et al., 2009; Görgen et al., 2009; Zoomers, 2010).

The outcomes of such a seemingly perfect match are, however, often rather disappointing. This has been for example researched by White et al. (2012) in a general matter, by Li (2011) with a focus on labour issues or by German et al. (2013) who point to the difficulty of customary rights protection. For my case study country Ghana, several scientific studies reveal mixed or predominantly negative outcomes (Schoneveld et al., 2011; Tsikata and Yaro, 2011; Amanor, 2012; Wisborg, 2012; Berry, 2013; Yaro and Tsikata, 2013), but some positive effects have been reported (Boamah, 2011; FAO, 2012b).

The wide range of possible outcomes makes the neoclassical interpretation of large-scale land acquisitions appear simplistic in the extreme. The fields of New Institutional Economics offers more appropriate tools for analysing institutions that define ‘the deliberate incentive structure of a society’ (North, 2005, p. 1). For this study I therefore used Ostrom’s (2005) institutional analysis and development framework as theoretical approach for investigating *why* the outcomes of large-scale investments in land vary.

The aim of my case study is to shed light on the mechanisms that produce a particular outcome. It is ‘an intensive study of a single unit with an aim to generalize across a larger set of units’, as described by Gerring (2004, p. 341). I treat the Ghana Oil Palm Development Company’s investment as ‘single unit’ (Gerring, 2004; Seawright and Gerring, 2008) and the

long-term impacts for the different population groups as ‘within units’ (Gerring, 2004, p. 343). My aim in analysing these impacts was to reveal *how* the outcomes of large-scale investments in land vary.

The analysis is based on field research conducted in 2010 and 2011. My qualitative data are derived from 33 semi-structured interviews with a wide range of experts who are stakeholders at national and local levels (Table A1 in the appendix); 12 focus group discussions (Table A2 in the appendix) which capture the voice of subgroups of the local population variously affected by the investment (contract farmers, casual workers, permanent staff, the vulnerable, the better-off, and so on); and a survey of community representatives in 49 villages.

The rest of the paper is organised as follows. I first explain my conceptual framework and apply it to the case study country, Ghana. I then present the two land acquisitions by Ghana Oil Palm Development Company in the light of the country’s legal framework. Next I discuss the consequences of these acquisitions retrospectively. I follow this by discussing and systematising social differentiation with regard to long-term outcomes at household and village level. In concluding I offer some generalised recommendations.

2. A Conceptual Framework for Analysing Land Acquisitions and its Application to Ghana

According to Eggertsson (2005), we cannot improve outcomes without understanding the structure that produces them. To examine the reasons why the outcomes of large-scale investment in agricultural land vary, I follow Bates (1998) in drawing on analytical narratives to analyse the structures of complex action-outcome linkages and their consequences.

Ostrom’s institutional analysis and development framework is my starting point, and what she calls the *action arena* is my unit of analysis. Any particular action arena can be understood as a set of dependent variables (Ostrom, 2005). In analysing the action arena for large-scale land transactions, I look at the multitude of possible actions that are involved in implementing a land deal.

2.1 The Context

In Ostrom's framework (2005), three *context* variables affect the structures of the action arena. First, the action arena is influenced and confined by the *resource endowment*; that is, the physical, ecological and biological context, which in the case of Ghana comprises the coastal zone, the forest belt and the savannah.

The second variable is the cultural and constituting political context, which can be termed the *constitutional choice level* (modified from Ostrom, 2005). It defines a society and comprises in line with Williamson (2000) both informal institutions (i.e. norms, customs and traditions) and formal institutions (i.e. the legislative framework). In Ghana, for example, the constitutional choice level incorporates the informally instituted notion that land belongs to the dead, the living and the yet to be born (Larbi et al., 1998; Osei, 1998), which makes land a source of cultural identity (Kwadwo, 2004). In its narrow sense the constitutional choice level incorporates the constitution as a formal institution which is fundamental to constitute a society.

Ostrom's third variable is the socioeconomic and political context, termed the *collective choice level* (modified from Ostrom, 2005). This level consists of the rules defining the relationship between participants in the action arena. While the constitutional choice level forms the foundation of a society, the collective choice level interprets and translates that foundation into more tangible informal and formal institutions. In the case of large-scale land acquisitions in Ghana, the formal institutions are characterised by legal pluralism which expanded under colonial rule (Aryeetey et al., 2007; Ubink and Amanor, 2008). The result is present-day Ghana's 166 different pieces of land legislation (Yeboah and Shaw, 2013), and consequently a weak land administration system (Kasanga and Kotey, 2001; Ubink and Quan, 2008). The informal institutions are manifested in a strong customary system that governs daily life in general and land transactions in particular (Kwadwo, 2002; Blocher, 2006; Anyidoho et al., 2008) and, moreover, the consultation process for drafting a new land bill in Ghana also recognises traditional procedures (Interviews G15, G29 in appendix A.1¹).

These three variables, the resource endowment, the constitutional choice level and the collective choice level, are the *nested levels of the context*. They frame the level which is the

¹ All interviews G1-G33 can be found in appendix A.1.

focus of my analysis, namely the *operational choice level*, where the *action arena* for large-scale land acquisitions is placed.

2.2 The Action Arena

The action arena involves participants, termed the ‘actors’, and an ‘action situation’ which allows different possible actions (Ostrom, 2005). Possible *actions* in the case of large-scale land acquisitions are: requesting land, offering land, expropriating land, negotiating transactions, implementing land acquisitions, regulating the acquisition process, enforcing contract regulations and monitoring. The *actors* associated with these actions are the investors; the traditional authorities; officials of government regulatory bodies such as (in Ghana) the Lands Commission, Land Valuation Board, Environmental Protection Agency and Water Resource Commission; and civil society.

These actors, assigned to various positions, are equipped with varying degrees of information about and control over the particular action situation (Ostrom, 2005). Hence, the power constellations inside the action arena affect the actions, which in turn have repercussions for the actors. Moreover, the set of possible actions for the action arena is determined by the context.

Finally, the outcomes at the operational choice level are produced by *patterns of interactions*. These patterns originate from actors who are linked to actions within the action arena. It is here that we can begin to analyse the outcomes of the actions.

2.3 Rationale for Varying Outcomes

In the case of large-scale land investment in Ghana, a literature review reveals varying outcomes between and within different investment cases (Schoneveld et al., 2011; Boamah, 2011; Tsikata and Yaro, 2011; Amanor, 2012; FAO, 2012b; Wisborg, 2012; Berry, 2013; German et al., 2013; Yaro and Tsikata, 2013). This variation can be explained as follows. In the context of weak land legislation with a plurality of laws and a weak land administration system, the collective choice level is characterised by ambiguous rules. Even worse, the constitutional choice level fails to provide clear guidance. Although it recognises the highly influential customary land governance system (Kasanga and Kotey, 2001; Kwadwo, 2002) in its constitution (Republic of Ghana, 1992), Ghana lacks a broad societal consensus between customary and statutory rules (Blocher, 2006; Anyidoho et al., 2008; Ubink and Quan, 2008).

Moreover, the resource endowment is not well understood by land and investment related agencies and by traditional authorities. Due to the lack of a complete land registry and documentation at the local level, the amount of available land for large-scale investment projects is unknown (Aryeetey et al., 2007, Schoneveld et al. 2011). Those who negotiate land deals are thus often unaware of potential resource scarcity. Long-term trends such as population growth and land degradation or extensive land use are often not taken into consideration when renting out seemingly idle land (Cotula et al., 2009).

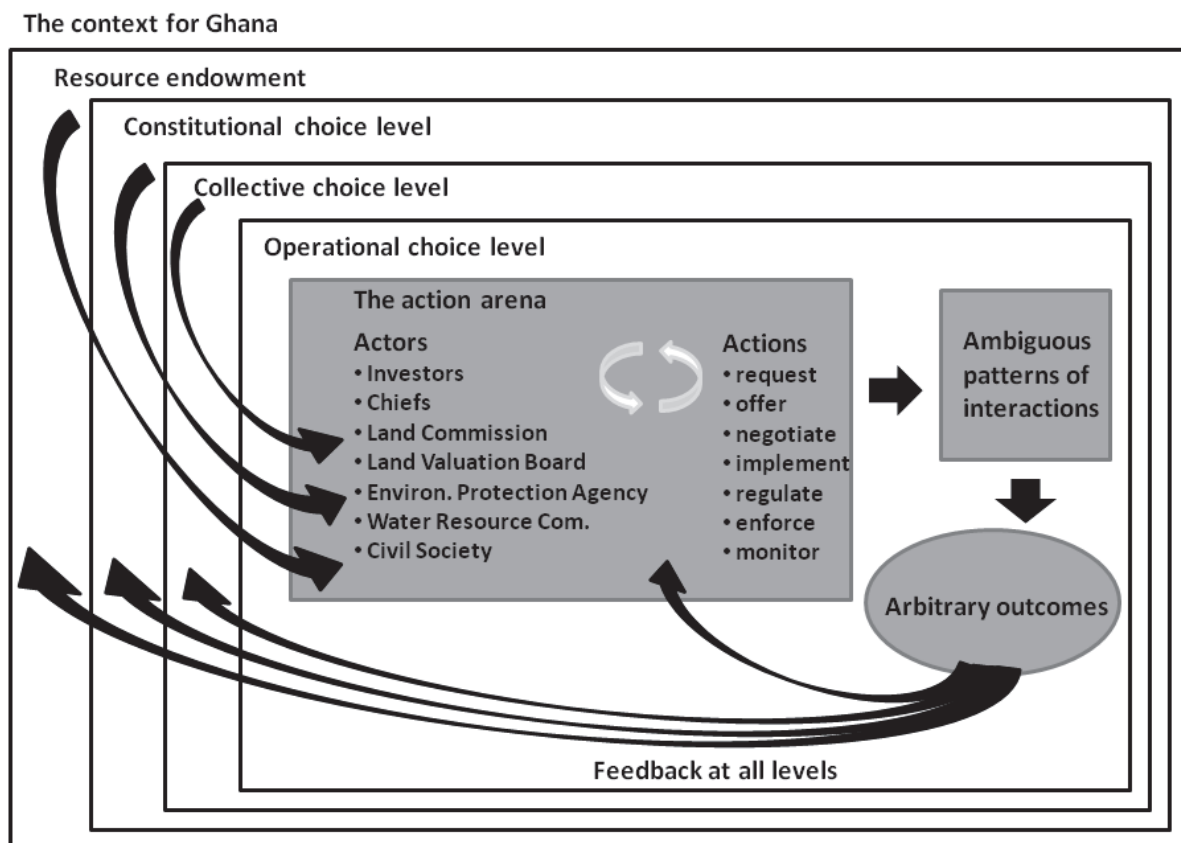
As the rules that govern land acquisitions are neither clearly defined as formal institutions nor harmonised with informal rules that are widely agreed upon, they cannot provide the actors with uniform directions. The result is an ambiguous pattern of interactions for large-scale land investments. Instead of structuring the operational choice level, the miscellany of rules encourages exploitation of legal grey areas, thus providing opportunities for rent-seeking.

The consequences for the action arena are obvious: different actors use their power with regard to natural and financial resources, access to information, or control over other actors, to realise their goals (Goldstein and Udry, 2008). Whether this is in line with common welfare depends very much on the personal motivation of the actors. We can therefore conclude that outcomes will vary considerably.

Figure 1, summarises the theoretical framework used in this study to analyse the underlying process of large-scale land acquisitions. It shows that the outcomes of such investments send *feedback* at all levels. In the action arena at the operational choice level, outcomes lead to adjustment, confirmation or questioning of the actions (depending on which actors are involved). At the collective choice and constitutional choice levels, arbitrary outcomes reveal institutional inefficiencies. One effect of such feedback in Ghana has been a far-reaching institutional reform process initiated by the National Land Policy (Republic of Ghana, 1999) and supported by a Land Administration Project (Aryeetey et al., 2007). In addition to the third draft stage of the Land Bill (Republic of Ghana, 2010), a new Land Use and Spatial Planning Bill (Republic of Ghana, 2011) is currently at the consultation stage. Moreover, negative outcomes of investment projects lead to increasing criticism of the customary system and consequently to stronger pressure on informal institutions (Logan, 2011). This happens, for instance, when chiefs lease land to investors without proper consultation of the local population or when there is little accountability in the use of revenue (Berry, 2009). Both

institutional reform and criticism of the customary system might result in what we can interpret as ‘level-shifting’, using Ostrom’s term (2005).

Figure 1. A framework for varying outcomes in conjunction with large-scale land acquisitions



Source: Own data, modified from Ostrom (2005); Di Gregorio et al. (2008)

My conceptual framework so far answers the question as to *why* the outcomes of land-based large-scale investment vary, whether the variation is between different investment cases or within a particular investment case. Given that different population groups are represented in different ways by the actors in the action arena, it is obvious that this leads to (or manifests existing) social differentiation. For instance, chiefs in their roles as landowners and traditional leaders of the local population are important actors in the action arena (see Ray, 1996). If we take D’Exelle’s (2009) view of elites as intermediaries, this helps us to see that elites are in a position to lobby for different population groups and thus more likely to bargain for their own people, the inhabitants of old-established villages, than for the settlements of migrant farmers.

In the following sections I use a specific investment case to explain *how* the outcomes of a particular investment case varied, affecting different population groups in different ways.

3. Land Acquisitions in Retrospect

Ghana Oil Palm Development Company (GOPDC) is the biggest palm oil producer in Ghana and the largest employer in the Kwaebibirem District (Eastern Region). It was established in 1976 as a state owned company but in the course of the liberalisation wave in 1995 the majority of shares were divested to the Belgian investor *Société d'Investissement pour l'Agriculture Tropicale* (SIAT, 2013; GOPDC, 2013). Today, GOPDC holds two land leases in the rural forest belt of Ghana, one for the Kwaie Concession and another for the Okumaning Concession.

3.1 The Kwaie Concession

The Kwaie Concession was acquired in the process of privatising the formerly state-owned GOPDC. Thereby, the initial 50 years leasehold (Republic of Ghana, Registered Leasehold No. 1258/1976) between the state and the 'old' GOPDC was transferred to the new investor in 1995. The Government of Ghana acquired the land in 1976 to foster economic development in the region. Thus, an area of 8,359 ha was expropriated in the public interest from the stools (that is, chieftancies) of Kwaie, Asuom, Anweam and Mintah under the State Lands Act (Republic of Ghana, No. 125 of 1962) (Interviews G7, G14).

After more than three decades, an exact reconstruction of the acquisition process is not possible, but anecdotal evidence reveals that officials behaved arbitrarily and compensation was rather erratic (Interview G7; FGDs G11, G12 in appendix A.2²). According to the conceptual framework this is no surprise, as the constitutional amendments of the 1960s formed Ghana into a one-party state and anchored severely restricted civil rights and unlimited power of the state at the constitutional choice level. Given various military coups in the 1970s the collective choice level was therefore characterised by the rule of power instead by the rule of law. Thus, at the operational choice level the ruling elite extracted shamelessly rents from those with less power.

² All focus group discussions (FDGs) G1-G12 can be found in appendix A.2.

When the state owned company commenced operations in 1976, only a few land users in the sparsely populated area had to give way for the construction of a nursery, housing structures and the mill (Interview G8, FGD G12). Under military rule, they were forced to leave the centre of the concession, the point from which the expansion over the next decades started. As the oil palm plantations expanded, more densely populated areas closer to the surrounding villages were affected and the communal forests were depleted, depriving the villagers of resources such as firewood, game meat, snails and herbs (FGDs G11, G12). The number of land losers increased and peace in the area was threatened because idle land, which could have served as a buffer zone for small-scale farming, was no longer available. As suggested by the conceptual framework, heavier resistance consequently forced the actors to rethink their behaviour at the operational choice level.

As part of compensation initiatives and with the aim of economic integration, the state-owned company established therefore smallholder schemes. With World Bank support, demarcated plots of the concession were allocated between 1978 and 1982 for oil palm cultivation (7 ha/farmer in the beginning, later 2 ha/farmer) to those who had lost their farm land (Interviews G7, G8, FGD G12).³ The smallholder agreement obliged farmers to sell their produce to GOPDC, in return for which they received technical assistance and inputs on credit from the company. In addition, oil palm production was augmented from 1986 onwards through the introduction of outgrower schemes. With the outgrower contract GOPDC offered the same smallholder agreement conditions to oil palm farmers who could prove secure land use rights for at least 25 years for a plot (Interviews G5, G6).⁴ Thus, over the next two decades roughly 250 farmers per year received an outgrower contract for their plots, which varied from 0.5 to 4 ha (Interview G8).

Nevertheless, the mill could still not be operated at full capacity. A further reason was that the new investor had abstained from using 2,343 ha of its 8,359 ha concession. Even though the privatised GOPDC pays ground rent for the whole concession to the Lands Commission and thus has the legal right to use all the land, further expansions within the concession had been stopped in the late 1990s. This was the only way to maintain operational peace with GOPDC's neighbours or in line with the conceptual framework a result of further adjustment

³ These land allocations were governed by a 25-year smallholder contract. After this period the contract was renewed, but the plot size was decreased from seven to two hectares because the farmers could not afford to cultivate the whole of the larger plot. In the beginning farmers also received one hectare for food cultivation.

⁴ Secure land use rights either means owning land (customary freehold) or having a long-term sharecropping arrangement. In the latter case, the landlord has to agree to the outgrower contract by signing it. For more details on sharecropping, see Amanor (2001).

in the action arena to prevent sabotage and uprising.⁵ Otherwise, the destruction of the Apam shrine (a cultural heritage) and autochthonous villages (Kwae, Adiembra, Afunya and Atobriso) would have been inevitable (Interview G7). Thus, it is obvious that the original land acquisition went hand in hand with serious government failures: instead of surveying the area carefully and allocating only tracts of viable land to economic exploitation, the military regime of the late 1970s included cultural heritage and old-established villages in an economic concession.

As another way of obtaining additional oil palm fruit, GOPDC purchased from independent farmers. This enhanced the economic integration of the local population, but still did not provide sufficient fruit to operate the mill efficiently. GOPDC therefore acquired a second concession.

3.2 The Okumaning Concession

The Okumaning Concession covers 5,205 ha. In 2000 it was leased to GOPDC by the government for 50 years (Registered Deed RE 2538/2008). In contrast to the Kwae Concession, this second concession was originally acquired by the state under the Administration of Lands Act (Republic of Ghana, No. 123 of 1962) from the Okumaning, Takworase and Kusi stools to set up the state owned enterprise State Oil Palm Plantations in 1976.

Whereas acquisitions under the State Lands Act (Republic of Ghana, No. 125 of 1962), for instance Kwae, ultimately transform customary land into public land, acquisitions under the Administration of Lands Act (Republic of Ghana, No. 123 of 1962), for instance Okumaning, create double structures when introducing vested land: in such cases, the chief keeps the allodial title (that is, the overall ownership), while the management functions are transferred to the state. Thus, in the case that is the subject of this study the state finally leased the land to GOPDC. This split of property rights hugely complicates matters and intermingles responsibilities of actors in the action arena. Consequently, the chiefs remain entitled to ground rents and GOPDC resumes assets and liabilities when taking over the management functions of the state. In the course of leasing the land, liabilities arising include the duty to compensate people who lived and farmed at the concession for loss of crops and housing

⁵ Currently 28 land conflicts are being disputed in court. They are related to smaller land tracts and can be seen as individual conflicts with GOPDC. The majority of neighbours live in operational peace with GOPDC (FGDs G11, G12).

structures (according to the Administration of Lands Act, Republic of Ghana, No. 123 of 1962).

This turned out to be challenging for various reasons. In the days of the State Oil Palm Plantations, the concession was even less populated than the Kwae Concession and instead of old-established villagers there were only a few migrant farmers who had settled in the forests. After GOPDC took over the Okumaning Concession in 2000, it presented a resettlement plan to the migrants within the frame of its 2002 environmental impact assessment. Since they had no social ties to the land, the migrants rejected the plan and opted for cash compensation (AY & A Consult, 2007; Interview G3, FGD G4). Because migrants lack customary rights (Kobo, 2010), they were entitled to compensation only for their housing structures and crops, which were valued accordingly by the Land Valuation Board (Interviews G1, G2, G3, G7, G14, FGDs G4–G10). As these payments were not sufficient to ensure self-sustainability, the migrants felt cheated by GOPDC and the Board (FGDs G1–G8, G10). Although the investor followed the rules set by the collective choice level, unfair outcomes for the migrants were produced in the action arena. Thus, the state actors who agreed upon the legislation have failed to implement measures which guarantee alternative livelihoods for those who lost their land use rights and consequently their main source of living.

Moreover, the whole process, from information and sensitisation to valuation and compensation, was heavily criticised. There was no systematic information. Participants of focus group discussions revealed various ways they had heard about GOPDC's land acquisition: some had heard it from the chiefs (FGD G8), some had been informed in a meeting with GOPDC (FGD G1), and others had only become aware of it due to the demarcation activities of the Board (FGD G9). This shows that the action arena has rather produced ambiguous patterns of interaction and for this reason, arbitrary outcomes.

In addition, time frames between valuation and payments were entirely unclear and contravened the legally guaranteed entitlement to 'prompt, fair and adequate compensation' (Republic of Ghana, 1992, Chap. 5, 20(2)). In many cases several years had elapsed between valuation and compensation (FGDs G5, G6). Frustration was further increased by the inability of the Board to disclose the amount of remuneration for the various crops (FGDs G2, G3–G7, G10). Although fundamental provisions for compensations are embedded in the constitution of Ghana and are consequently part of the constitutional choice level, their translation into tangible regulations at the collective choice level is fuzzy and lacked clear guidance for the

Land Valuation Board. Even worse, the Board failed to enforce minimal provisions immediately in the action arena due to its financial and personnel capacity constraints.

Even though GOPDC followed the legally required procedure (Interviews G16, G20), the fact that cheques only stated the aggregated sum worsened the tensions. It discloses that mal-designed or poorly enforced rules yield to negative outcomes for the local population which in turn provoke feedback in the form of pressure on the context.

However, to convey the full picture I must emphasise that the role played by some traditional authorities was problematic. Janus faced, they received their portion of the ground rent from GOPDC through government channels while at the same time ignoring the acquisition under the Administration of Lands Act (Republic of Ghana, No. 123 of 1962) and renting out smaller portions of the same land to migrants according to customary rules (FGDs G4, G5, G7, G9). Thus, their opportunistic behaviour underlines how actors in the action arena behave when a context lacks harmonised formal and informal institutions.

In general, the chiefs are powerful actors and, according to custom, highly appreciated (Osei, 1998; Logan, 2011). Their discourse with GOPDC on corporate social responsibility (CSR) activities to enhance the welfare of the communities (Interviews G7, G8) and their lobbying for oil palm farmers are welcome (Interviews G1, G2, G14) but the fact that negotiations lack accountability and that some chiefs had misused their position to bargain for personal benefits led to criticism (Interviews G7, G15); as one discussion participant said, ‘the chief has misled; the investor could not know’ (FGD G4). Once again, opportunistic behaviour at the cost of the local population produces feedback. This is reflected in questioning informal institutions at the constitutional choice level. Thus, caused by large-scale land acquisitions people nowadays ask whether the power of the chiefs has to be limited by checks and balances to prevent abuse.

Overall, this case reveals the challenges of large-scale investment within a weak land governance system. Moreover, it shows that investors are likely to inherit land disputes and that overlapping claims emanate from earlier acquisition activities. Widespread resentment is thus a logical consequence and was prominent in the case of GOPDC (FGDs G1–G12). However, the fact that GOPDC’s nucleus estate system incorporates more than 2,000 plantation workers, 200 smallholders and 7,000 outgrowers calls for a deeper analysis of its outcomes to avoid drawing superficial conclusions. In the following section I therefore offer a detailed assessment of the outcomes with respect to different population groups.

4. Outcomes: Variation and Social Differentiation

4.1 Overview of General Outcomes

I conducted a community survey in 49 villages within a 35 km radius of GOPDC's mill at the Kwaie Concession. In each village I interviewed three representatives together (a member of the royal family, a member of the village council and a leading farmer), so they could discuss the questions and come up with a common answer. Data from this survey gave a first impression of GOPDC's performance and its spillover effects. Of the 49 groups, 11 (20%) agreed without hesitation that their community had benefited from the investment. The opinion of one fifth does not speak of a general success, but does suggest that some villages had experienced improvements. The remaining 28 groups (60%) said their community had not benefited at all.

To assess developments without arousing emotions by mentioning GOPDC, I asked the groups whether living conditions in their villages had changed over the last decade. Thirty-two (65%) said they had experienced an improvement, seven (15%) had observed no change and 10 (20%) reported a deterioration. Given the absence of special government initiatives, development assistance or NGO projects in 45 of the 49 communities, these assessments may be directly attributable to GOPDC as it represents the biggest investment project in the area. But although the living standards had improved for roughly two thirds of the surveyed villages, the investment is also likely to have made conditions worse for one fifth.

Perceptions of the outcomes of the investment therefore varied widely. When asked 'What are the three main weaknesses of GOPDC?', most said that GOPDC had failed

- to build a school or provide education for children and scholarships (28 groups – 60%),
- to construct or maintain roads (20 groups – 40%),
- to help solve water problems (10 groups – 20%),
- to help with or provide social amenities (9 groups – 20%), and/ or
- to provide electricity or electricity poles (9 groups – 20%).

These statements may reflect unmet expectations. Unrealistic expectations seem to be a common problem of large-scale investment projects (Schoneveld et al., 2011; Tsikata and Yaro, 2011). As conceptualised by my theoretical framework, they often arise as a by-product in the action arena and are a consequence of a single actor's motivation. Unrealistic

expectations are created by rhetoric from three directions: from the investors, who try to balance profit maximisation with positive spillover effects to gain support from the local population; from the national and local politicians, aiming to retain or attract rural votes, who suggest that the investment will develop the neglected agricultural sector and remote areas (Lindberg, 2010); and from the traditional elites, who justify their personal gain from the investment by promising to defend the customary system as a facilitator for local development.

Even though GOPDC addresses CSR matters such as education, health, water, electricity and road maintenance, the top five answers to the question ‘What are the three major strengths of GOPDC?’ showed that community representatives did not perceive the benefits of the investment to be in such activities, but rather in

- introducing the oil palm business in the area (39 groups – 80%),
- improving living standards (by buying from farmers) (19 groups – 40%),
- distributing oil palm seedlings to farmers (14 groups – 30%),
- creating employment (14 groups – nearly 30%), and/ or
- introducing smallholder and outgrower schemes (9 groups – 20%).

Hence, GOPDC was recognised rather as a driver of economic development in the area, and this view was broadly confirmed in the focus group discussions (FGDs G1–G3, G7, G8, G10–G12). Groups of on average 10 participants discussed the development of their village in the last 40 years, the implementation process of the investment project and the way it has affected their community. Although resentment was prevalent (FGDs G1–G12) and outcomes fell short of expectations, the discussion groups also mentioned some positive outcomes; they could not, for example, deny benefits such as employment creation (FGDs G1–G4, G7–G12). Whereas the community representatives generally complained about lack of infrastructural improvements, several of the discussion groups noted the advantages of better road infrastructure (FGDs G1–G4, G7, G8, G10–G12), support to get electricity (FGDs G1–G4, G7, G8, G12) and improved health and schooling facilities (FGDs G1–G4, G7, G8, G10–G12).

The negative views can be summarised as follows: decreased access to agricultural land (FGDs G1–G12), increased food prices on local markets (FGDs G1–G12), low and late compensation (FGDs G1–G10), low wages (FGDs G1–G3, G11), unsatisfactory casual contracts (FGDs G1–G3, G5, G7, G11), low prices for oil palm fruit (FGDs G11, G12) and

too little corporate social responsibility (FGDs G1–G12).⁶ These complaints suggest not only that expectations remain unmet, but also that the investment was partly responsible for deteriorating living conditions (for example because of increased food prices and decreased land availability).

The contrasting views of the community survey representatives and the discussion groups illustrate how outcomes varied and are in line with earlier findings of Amanor (1999) who points to rural social differentiation around GOPDC. They also give a first hint how rather positive impacts as shown by Adjei-Nsiah et al. (2012) and Huddleston and Tonts (2007) fit to the negative outcomes revealed by Watts (1994) and Gyasi (1994). The following section analyses the causes of this variation in more detail.

4.2 Specific outcomes

To differentiate between various population groups and varying outcomes, I ensured that my focus groups captured a wide range of population subgroups, neighbouring the investment.

4.2.1 Okumaning Village: Mixed Outcomes for Nearest Neighbours

As a direct neighbour of the Okumaning Concession, Okumaning Village has been affected by GOPDC's operation since 2000. All the discussion groups in Okumaning (vulnerable, average and wealthier) mentioned employment creation, access to electricity, the setting up of a clinic by GOPDC and improved roads as benefits, and increasing food prices and loss of agricultural land as the heaviest burdens (FGDs G7, G8, G10). The degree to which single groups were affected varies. For example, one participant in the vulnerable group did not see the benefit of electricity, saying: 'I think the coming of GOPDC did not help the community. What is the use of electrical power, if you don't have money? You can't even pay the electricity bills' (FGD G7). It was the more affluent who benefited from the electricity supply, particularly because refrigerators and other electrical appliances enabled them to earn income (FGD G10).

One participant thought it was the elders and chiefs who had benefited most from GOPDC (FGD G10), which is what my conceptual framework would lead me to expect. As actors in the action arena the chiefs have the chance to directly negotiate their outcomes, especially

⁶ Whether the company exhibits too little CSR is debatable. We need to question to what extent the development of social and physical infrastructure is part of an investor's duties. However, this perception does reflect the prevalence of unrealistic expectations.

when an ambiguous context allows them to manoeuvre in the legal grey areas. However, all the groups agreed that employment possibilities were beneficial, especially for youths with sufficient strength to do plantation work (FGDs G7, G8, G10).

With regard to the loss of land, the groups were differently affected, since not all had their farm plots on the concession. The vulnerable group were the most seriously affected, as they cultivated fewer farm plots in total and were thus more likely to lose all the land they owned. As has been mentioned, for some the compensation was insufficient to restore livelihoods. For some people, the compensation sufficed only to settle debts (FGD G7) and pay for children's education (FGDs G7, G8, G10), while others were enabled to rebuild houses or invest in productive assets such as cars (FGD G8).

Overall, the Okumaning discussion groups reported mixed outcomes, on average emphasising advantages such as employment creation and improved infrastructure (FGD G8). The vulnerable group seemed to benefit least from the positive effects and to suffer disproportionately from the burdens, while the average and wealthier groups highlighted both pros and cons. The wealthier group were aware that GOPDC had limited their 'room to manoeuvre'. For example, before the investor took over there were certain uncontrolled areas where people could expand their farming activities; as one participant said: 'I didn't own the land, but nobody complained when you farmed on the land' (FGD G10). This group not only lost big farm plots, they also suffered most from the loss of markets for their remaining produce as a result of the displacement of migrant settlers from the concession (FGD G10). One participant complained about a decrease in access to finance: 'When we had our farms, every year we gained something meaningful from them. Formerly, it was easy to obtain loans, but now because we do not have the land and the farms any more, people do not grant us loans any more' (FGD G10).

Focus group discussions with people from Okumaning Village reveal that the investment met a society where social differentiation was already prevalent. As vulnerable people were affected disproportionately negatively, the investment is likely to increase inequalities. However, it also led to shifts in social differentiation as it benefited for example especially the youth who gained employment. Furthermore, the burden to lose land to the investment was not equally distributed among villagers, while some lost a lot and did not receive sufficient compensation to restore their livelihood, others were not affected at all or managed to attract higher compensation payment. With regard to the conceptual framework, these outcomes are

associated to the actors' behaviour in the action arena. It is obvious that the nature of the investment (i.e. its recruitment policy, the amount and quality of CSR activities, or its geographical location) explain much, but many outcomes are additionally caused by other actors like the chiefs who bargained strategically or the state agencies who transferred the concession to GOPDC without accompanying measures to prevent increasing social differentiation or ensuring adequate compensation for land losers.

4.2.2 Congo Village: Inadequately Compensated

Two former migrant villages, Agye Badu and Dwenase, had disappeared in the course of oil palm expansion within the Okumaning Concession. It was thus impossible to capture the perceptions of a mixed group of villagers, as most of them had relocated to their hometowns in other regions of Ghana. I was, however, able to hold discussions with people who had received compensation for housing structures and had relocated to Okumaning or Kade (the district capital). I also conducted a discussion group in Congo Village, where the land had already been valued and people were waiting for compensation so they could leave.

Those who had relocated to Okumaning or Kade mentioned benefits similar to those mentioned by the Okumaning groups (FGD G4), although the negative outcomes – the loss of homes and farms – were more severe. In contrast, those living in Congo were experiencing nothing but loss. It was likely that their compensation would be insufficient, because of the weaknesses in the land governance system. According to the conceptual framework, state agencies were unable to enforce the constitutional provisions for 'prompt, fair and adequate compensation' in the action arena. Comments like the following were frequent: 'They will tell you not to farm this year, because they will start operations on the land. The year will pass by, yet they have not started and you cannot farm' (FGD 9). Furthermore, these people were too far away from the centre of operations to benefit from CSR activities such as improved health or schooling facilities, from direct benefits such as employment creation, or from spillover effects such as road maintenance (FGD G9).

Even worse, since their village was moribund, the better-off people had started outmigrating, while the poorer families were doomed to stay and wait for compensation. This had led to a decline in economic welfare and the collapse of the primary school, as the number of school children fell below a critical mass. People had to stop farming perennial crops, as their farm plots were to be destroyed in the near future (FGD G9). One farmer summed up the effects of this decrease in subsistence farming and lack of alternative sources of livelihood as follows:

‘Those days [before GOPDC] we were not given money for housekeeping. We were used to get all the foodstuffs from the farm. The only thing we bought to eat was meat, but currently we will buy almost everything’ (FGD 9). These migrant settlers, forced to leave their villages without prompt, fair and adequate compensation, were thus the biggest losers from the investment.

4.2.3 Aboabo Village: Too Distant to Benefit, but Close Enough to Lose

A similar picture emerged from discussions with an averagely wealthy group and a youth group in Aboabo Village. Aboabo is located outside the Okumaning Concession, but large parts of its farmlands had been claimed due to the land acquisition. This village also used to benefit from the surrounding migrant settlements within the concession. When these were resettled, Aboabo’s junior secondary school and its weekly market collapsed as many of those who had been compensated left the area (FGDs G5, G6). Aboabo itself is smaller than Okumaning and falls under the traditional jurisdiction of the Okumaning chief. Since many inhabitants were migrants, they were strongly affected when they lost their farm plots as it is more difficult for migrants to replace farm land.

This led to an increase in social differentiation and to people being forced to work as casual labourers or under unfavourable sharecropping arrangement on the lands of farmers who had not been affected (FGDs G5, G6). Pressure on land therefore increased; as one participant observed: ‘It is now the norm of the day: people give plots to more than one person. This has resulted in so many disputes in the community’ (FGD G6).

In addition, Aboabo is further away from GOPDC’s centre of operations than the direct neighbour, Okumaning, and thus did not profit from infrastructural improvements such as road construction. As the village is rather small, it had also not yet benefited from CSR activities such as support in getting access to electricity. Possible reasons for this could be that the fixed costs are disproportionately high for a relatively small village and that CSR activities in bigger villages might have broader impact and thus represent the more rational choice for investors.

My conceptual framework again suggests that the Okumaning chief would lobby for benefits for his own people rather than for those of Aboabo. With regard to employment creation, the youth of Aboabo was not benefiting much. Given the greater distance to GOPDC’s offices and to the workers’ meeting point, only three people were managing to work for the company

(FGD G5). In summary, then, Aboabo is too far away and too small to benefit, but close enough to be affected by negative outcomes.

4.2.4 The Workers: Employment Does Not Suit All

Another set of outcomes is related to GOPDC's workers. Once again, to minimise group heterogeneity I arranged three focus groups: permanent staff, casual workers who are paid per task for harvesting and can earn considerable wages, and casual workers who do slashing (weeding around the oil palms) on a fixed daily rate above the minimum wage. As the workers are from various surrounding villages which are all differently affected, I highlight here only the outcomes relevant to their employment situation.

On the negative side, both groups of casual workers complained that despite having worked for the investor for many years they had still not been offered a permanent contract (FGDs G1, G3). They were concerned about not being able to maintain their livelihood if they had an accident or when they retired (FGD G1). All three groups felt they were not appropriately paid (FGDs G1–G3). The low paid slashers, and also the harvesters, complained that what they were now earning as workers did not equal their earlier benefits from farming oil palm, cocoa, citrus or food crops (FGDs G1, G3).

On the positive side, workers mentioned education and credit, saying, for example: 'It has helped me to have my children educated up to the final stage of secondary school' (FGD G1) or 'If we compare the situation from the time when there was no GOPDC, working for GOPDC now makes it easy to obtain a loan' (FGD G1).

One person even said that he had benefited because the company had enabled him to buy two cars (FGD G2). Both pros and cons were evident in the outcomes for the workers, with the younger people and the better educated benefiting more than the others (FGDs G1, G2). Nevertheless, resentment against the land acquisition was common among workers who did extra work as part-time farmers or whose families also relied on farming (FGDs G1–G3).

In the light of the conceptual framework the focus group discussions with the workers reveal that their interests were not appropriately recognised in the action arena. While the state agencies were unable to negotiate benefits for employees when negotiating the land acquisition, the rather weak workers' unions failed to lobby appropriately for retirement provisions and insurance against accidents.

4.2.5 The Smallholders: Bitter Resentment despite Economic Benefits

More than three decades after its arrival there was still intense resentment of GOPDC among smallholders and outgrowers (FGDs G11, G12). Being close to the Kwae Concession, the smallholders had access to infrastructure provided by GOPDC, such as their clinic and their school, and the transport system in the area had improved with a growing Kwae Estate population. Higher population density had increased demand not only for minibuses, which led to improved connections, but also for goods and services, which in turn boosted the local economy (FGD G12).

However, people from Kwae Village, where most of the smallholders came from, had lost two thirds of their land because of GOPDC; the problem of land scarcity was pronounced (FGD G12). Moreover, smallholders' expectations were very high as they compared their neighbour GOPDC with large-scale investments by the mining industry (FGD G12), where a higher gross profit margin traditionally results in more CSR activities for communities. The focus group discussion with smallholders in Kwae Village disclosed exemplarily the long-term impacts caused by inappropriate actions in the action arena. In the course of the forceful acquisition of the Kwae Concession, interests of the local population were not at all recognised by the military regime. Later, the set up of the smallholder scheme was a move in the right direction, but turned out only partly beneficial. Until today, alternative livelihood strategies recognising the land scarcity are missing.

4.2.6 The Outgrowers: The Real Winners

The outgrowers' rating of GOPDC was the most positive of all the groups. Although they were not free from resentment, they mentioned the benefits of learning agricultural techniques and technologies promoted by GOPDC, such as plant spacing, fertiliser application and the use of chainsaws (FGD G11). Another positive outcome they mentioned was the improvement of the markets, which was interpreted from different angles in the discussion. First of all, they appreciated the introduction of the oil palm business in the area (FGD G11). The scheme had given the outgrowers access to inputs, credits and training, which enabled them to set up businesses and earn cash (FGD G11). In addition, GOPDC had helped to improve the banking system, as it channelled payments through the rural banks, resulting in improved access to loans (FGD G11). Another important benefit was improved schooling: some children could attend GOPDC's school and some outgrowers had been able to save enough money to send their children to university (FGD G11). The unclear policies of the

investor with regard to oil palm fruit prices and supportive inputs within the scheme remained a problem for the outgrowers, however. As one participant put it: ‘GOPDC is acting like a chameleon; it changes from time to time’ (FGD G11).

In the interest of fair assessment it must be said that the outgrowers also challenged GOPDC when they started side-selling or interrupted the payback of loans granted to them under the outgrower scheme (FGD G11, Interviews G4, G11). Despite their disappointment at the company’s recent policy changes, the outgrowers must be identified as the winners when it comes to outcomes of the investment. Besides their economic integration which was actively fostered by the investor, they may also have benefited because actors lobbied for them within the action arena. For example, the International Finance Corporation was interested in the outgrower scheme in conjunction with supplying a loan to support further expansion of the investment (IFC, 2007). The outgrowers also received strong attention from civil society, and development assistance within the framework of the National Interpretation of Principles and Criteria of the Roundtable of Sustainable Oil Palm in Ghana (RSPO in Ghana, 2013).

5. Conclusion

In this study I developed a conceptual framework to help explain why the outcomes of large-scale investment in agricultural land vary within and between investment cases. In this framework, I applied the ideas of Ostrom (2005) to systematically disclose varying outcomes in the case country Ghana. The framework differentiates between the *context* as a set of influencing factors (the resource endowment, the cultural and political setting and the socioeconomic background), which consist of a mix of informal and formal institutions, and the *action arena* as a dependent variable, where land transactions are implemented by actors who have various options as to how to act.

I discovered that the outcomes of large-scale investments vary for three reasons: the lack of a fully implemented and effective land governance system within a frame of clear formal institutions; the formal system’s failure to harmonise with the informal rules of the customary system; and asymmetric power relations between constellations of actors. Consequently, an institutional environment has been produced which encourages rent-seeking activities at all levels, unrealistic expectations about outcomes as a result of some actors’ rhetoric, and

lobbying activities aimed at converting outcomes of land acquisitions into benefits for the actors themselves or particular subgroups of the local population.

To show how such outcomes can de facto vary, I used the example of an in-depth analysis of focus group discussions conducted in the catchment area of the Ghana Oil Palm Development Company (GOPDC). While neighbouring villages (such as Okumaning) experienced mixed outcomes in the form of land loss on the one hand and infrastructural improvements and employment creation on the other, villages further away (such as Aboabo) were negatively affected because their geographic distance from the core of the investment area prevented them from accessing spillover benefits. Worst off were the people in villages such as Congo who had to relocate or were still in the process of resettlement, because the institutional environment was too weak to guarantee legal entitlement to prompt, fair and adequate compensation. Outcomes were mixed for the workers: my discussion groups revealed that the positive outcomes linked to employment creation were marred by the less than satisfactory quality of the casual jobs. Best off were the contract farmers, with the outgrowers in particular profiting from long-term economic integration, although the smallholders were still suffering from loss of land – a drawback that was highlighted by all subgroups of the local population.

These findings call for action to improve the outcomes of large-scale investment in agricultural land. I recommend corrective measures at various levels. To enhance the *context*, I suggest legal reform, to improve guidance for actors and ensure transparency, and modification of informal institutions, to create checks and balances in the customary system. I also recommend the implementation of voluntary standards – as suggested by the Voluntary Guidelines on Responsible Governance of Tenure, Land, Fisheries and Forests (FAO, 2012a), the African Union Framework & Guidelines on Land Policy in Africa (African Union et al., 2010) and the Responsible Agricultural Investment Principles (FAO et al., 2010). With investor commitment, these standards could help to channel actions towards positive outcomes and help to overcome the weaknesses of the existing land governance system.

Within the *action arena* I recommend more emphasis on sensitisation of negotiating parties, with respect to over-optimistic expectations, and of investors, with respect to the local population's strong cultural ties to their ancestral land. In the aim of improved transparency I recommend the use of institutionalised communication channels as a precondition for sustainable investment. However, my strongest recommendation for producing positive outcomes is the early development of alternative livelihood strategies to anticipate increasing

land pressure due to the investment project. Thereby, it is especially important to consider social differentiation.

First of all, large-scale land investment does not meet a homogenous local population, but occurs in a society with already inherent social differences. Thus, it is important to analyse whether the investment manifests, increases or decreases social differentiation. Secondly, large-scale land investment does not yield to equally outcomes, but can have quite different impacts caused by households' distance to the centre of operations, its amount of land lost to the project, its possibility to gain permanent, casual or no employment or its chance to participate in contract farming schemes. To realise benefits for the local population therefore requires rigorous ex-ante assessments on how to mitigate negative impacts and how to benefit rural households without rising social inequality or worsening the livelihoods of already disadvantaged households. At this stage, state actors have to check carefully whether a large-scale land investment truly has the potential to commercialise agriculture in remote rural areas. However, even if projects seem to be promising, state actors have to be realistic that such projects cannot be a cure-all, but rather require accompanying measures to avoid a widening poverty gap.

Finally, a comparison of characteristics of the *context* and the *action arena* reveals similarities to the land governance systems of other African countries and to other case studies on large-scale investments in developing economies. I suggest that the application of my framework to a particular investment case is a promising way to elicit insights. It will help to structure the way of thinking about large-scale investments in agricultural land and make generalised recommendations for the future.

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Appendix A

To guarantee anonymity, interviewees are listed according to their (rough) position and organisation but not names (Table A1). All interviewees were informed about the purpose of the interviews and how the data were to be used. Due to interviewees' reservations and the sensitiveness of the topic, interviews were not recorded.

Each focus group discussion (FGD) had 7 to 15 participants (Table A2). To reduce hierarchy within the groups, since it can hamper active participation, I organised the groups according to age (separating participants up to the age of 35 into 'youth' groups) and perceived wealth as follows:

Vulnerable: no house or only a small structure, none or few domestic animals, no bicycle, none or only a small piece of land.

Average: medium sized house, few animals, bicycle, school attendance at primary and often junior secondary level, little land ownership, but cultivation of several plots under sharecropping.

Wealthier: big house, more animals, motorbike or car, often fewer children, more extensive land ownership, cultivation of more than five plots, often additional sources of income from non-farm activities.

Employees of the investor were grouped according to staff category: casual, contract and permanent.

There are no gender-differentiated group discussions in the sample, since resources were limited. To compensate for this weakness, facilitators of FGDs were specially trained to encourage women's participation. Moreover, male and female local experts denied that gender was a critical factor in discussions on topics such as community history, the state of agriculture, and impacts of an investment (Interviews G13, G15, G17). Evidence from the FGDs did not support the common belief that the presence of men prevented women from voicing their concerns. Discussions were led in local languages (Twi or Fante), recorded and then transcribed into English. All participants were informed about the

purpose of the FGDs and how the data were to be processed. Before recording, the group's consent was obtained.

Table A1. Interviews

Code	Position/ Institution	Gender	Place	Date
G1	Traditional authority a	M	Kwaebibirem Dist.	27/10/2011
G2	Traditional authority b	M	Kwaebibirem Dist.	04/11/2011
G3	Traditional authority c	M	Kwaebibirem Dist.	04/11/2011
G4	Manager a – GOPDC	M	Kwaebibirem Dist.	08/11/2011
G5	Executives outgrowers association	M, M	Kwaebibirem Dist.	09/11/2011
G6	Manager b – GOPDC	M	Kwaebibirem Dist.	09/11/2011
G7	Manager c – GOPDC	M	Kwaebibirem Dist.	09/11/2011
G8	Manager d – GOPDC	M	Kwaebibirem Dist.	09/11/2011
G9	Manager e – GOPDC	M	Kwaebibirem Dist.	09/11/2011
G10	Snr. official – District Assembly	M	Kwaebibirem Dist.	10/11/2011
G11	Middle men	M	Kwaebibirem Dist.	10/11/2011
G12	Official – OASL	M	Kwaebibirem Dist.	11/11/2011
G13	Snr. official a – Ministry of Food and Agric.	M	Kwaebibirem Dist.	11/11/2011
G14	Traditional authority d	M	Kwaebibirem Dist.	12/11/2011
G15	Representative – civil society	F	Accra	14 & 30/11.
G16	Snr. official a – Lands Commission	F	Accra	15/11/2011
G17	Official – Ministry of Food and Agric.	M	Accra	16/11/2011
G18	Snr. official a – Land Administration Project	M	Accra	17/11/2011
G19	Official – Ghana Investment Promotion Centre	M	Accra	17/11/2011
G20	Snr. official b – Lands Commission	M	Accra	17 & 22/11.
G21	Snr. official c – Lands Commission	M	Accra	18/11/2011
G22	Snr. official b – Land Administration Project	M	Accra	18/11/2011
G23	Snr. official – OASL	F	Accra	18/11/2011
G24	Snr. researcher – AGRA	M	Accra	21/11/2011
G25	Snr. official – IFPRI	M	Accra	21/11/2011
G26	Snr. official – Ghana Agric. Workers Union	M	Accra	21/11/2011
G27	Snr. official d – Lands Commission	M	Accra	22/11/2011
G28	Snr. official b – Ministry of Food and Agric.	F	Accra	23/11/2011
G29	Snr. official – House of Chiefs	M	Accra	24/11/2011
G30	Expert – Town and Country Planning Dep.	M	Accra	24/11/2011
G31	Official – Water Resource Commission	F	Accra	25/11/2011
G32	Professor – University of Ghana	M	Accra	28/11/2011
G33	Snr. official – Environmental Protection Agency	M	Accra	29/11/2011

Note: AGRA – Alliance for Green Revolution in Africa; IFPRI – International Food Policy Research Institute; OASL – Office of the Administrator of Stool Lands

Table A2. Focus group discussions (FGDs)

Code	Place	Category	Date
G1	Okumaning Plantation	Casual workers – slashing – GOPDC	26/09/2011
G2	Okumaning Plantation	Permanent employees – GOPDC	27/09/2011
G3	Okumaning Plantation	Casual workers – harvesting – GOPDC	27/09/2011
G4	Okumaning	Rich before they received compensation	27/09/2011
G5	Aboabo	Youth	28/09/2011
G6	Aboabo	Average	28/09/2011
G7	Okumaning	Vulnerable	31/10/2011
G8	Okumaning	Average	31/10/2011
G9	Congo	To be compensated	01/11/2011
G10	Okumaning	Mixed: average & wealthier	01/11/2011
G11	Asuom	Outgrowers	01/11/2011
G12	Kwae	Smallholders	01/11/2011

**Do property rights and contract farming matter for rural development?
Evidence from a large-scale investment in Ghana***

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Abstract

With the rising demand for agricultural land, land deals must be designed to benefit not only the investors but also the local population. This paper looks at two ways this might be done for farmers in the vicinity of a large-scale oil palm investment in Ghana: contract farming and secure property rights to land. We compare farmers to whom outgrower contracts were allocated, in a quasi-natural experiment, with independent oil palm growers. We find that property rights have a significantly positive effect on households' agricultural income, profit per acre, and perceived future security, but that while contract farming has a significantly positive effect on households' aggregated assets and perceived future security, its effect on agricultural income and profit per acre is significantly negative because of effort substitution, since outgrowers have a higher probability of engaging in non-farm business. The identified effects are highly significant and supported by robustness checks. We conclude that large-scale investment need not be to the disadvantage of the local population if it respects existing bundles of property rights and may be beneficial for those who participate in contract farming.

JEL classifications: D60, O17, Q13

Keywords: Contract farming; Property rights; Large-scale land investment; Quasi-natural experiment; Oil palm; Ghana

1. Introduction

Driven by the latest food, fuel, and financial crises, private and public investors from all over the world are rediscovering the agricultural sector and investing in large tracts of arable land. However, their demand for food and fodder, industrial raw materials, bio mass, or safe financial investment does not necessarily coincide with host countries' demand for economic integration of the local population, infrastructure development, employment creation, and technology transfer (Borras and Franco, 2012; Cotula and Vermeulen, 2011; Deininger et al., 2011; De Schutter, 2011; Görgen et al., 2009). In particular, where properly enforced legal frameworks are lacking, customary ownership is often inappropriately recognized (German et al., 2013; Deininger et al., 2011; Sjaastad and Cousins, 2008; Ray, 1996), and poor documentation and weak enforcement of rules and regulations prepare the ground for rent-seeking activities and elite capture (Nolte and Vāth, 2013; Ubink and Quan, 2008). There is therefore a danger of land being acquired at the cost of the local population (Amanor, 2012, for Ghana; Wisborg, 2012, for Ghana; Schoneveld et al., 2011, for Ghana; Cotula et al., 2009; von Braun and Meinzen-Dick, 2009).

Although risks are high and institutional environments are challenging, large-scale investment in agricultural land may – if well-designed – be a means to close yield gaps after decades of neglect of agriculture in developing countries (HLPE, 2011; World Bank, 2008; Bruinsma, 2003). It is therefore worth learning from the experience of a country like Ghana that aims to maximize welfare. The aim of our study was to investigate whether contract farming can forge a sustainable link between the local population and an investor.

Whether outgrower schemes² can simultaneously enable an investor to benefit from local land resources and small-scale farmers to commercialize their agricultural production is subject to debate. Some researchers point to increased efficiency as a result of overcoming rural market imperfections (e.g. Saenger et al., 2013; Bellemare, 2012; Minten et al., 2009; Simmons et al., 2005); others point to increased vulnerability because of one-sided risk transfers from the investor to the farmers (e.g. Yaro and Tsikata, 2013; Sivramkrishna and Jyotishi, 2008; Porter and Phillips-Howard, 1997; Little and Watts, 1994). As Narayanan (2014) shows, the effects of outgrower schemes vary according to the contracted commodity and the contracting company. It is thus inappropriate to generalize. Our study looked at potentially beneficial

² The terms 'contract farming' and 'outgrower scheme' are used interchangeably in this study.

contract farming in a competitive setting where the investor has an excess demand due to large production capacities and offers long-term contracts for tree crop production to rural households whose land rights remain untouched.

Our study benefits from a setting in which contracts were allocated in a quasi-natural experiment where farmers did not influence their assignment to the treatment (contract farmer) or the control group (independent farmer) (see DiNardo, 2008, for a discussion on quasi-natural experiments). Our analysis therefore does not suffer from reverse causality problems and biases caused by unobserved differences between treatment and control group. This enables us to estimate the causal effect of contract farming and go beyond a number of studies that fail to eliminate possible selection bias with regard to farmers' attitudes, geographical placement, and the selection criteria applied by the company, as highlighted by Barrett et al. (2012). Our study complements a recent strand of literature addressing possibly unobserved ex-ante heterogeneity, such as Dedehouanou et al. (2013), Bellemare (2012), Rao and Qaim (2011), Ashraf et al. (2009), Minten et al. (2009), and Miyata et al. (2009).

Considering various transmission channels of contract farming, we complement household-level measures of asset endowment and agricultural income with plot-level measures of profit per acre. Household data enables us to capture the overall effect, including potential spillover effects; for example, knowledge transfer may improve agricultural income from non-contracted plots when outgrowers switch to new agricultural techniques, and access to credit may foster outgrowers' investment beyond oil palm production and in turn enhance their asset endowment. Plot data enables us to emphasize direct productivity effects; for example, contracted plots may increase profits because of quality inputs supplied by the investor or decrease profits because of principal-agent problems since the investor cannot completely monitor the outgrower's effort on the contracted plot.

To gain a more comprehensive picture, we add a subjective well-being measure to these objective outcome variables (MacKerron, 2012; Frey et al., 2002). Following Cummins's (1996) 'domains of life satisfaction' approach, we draw on satisfaction with future security and use subjective well-being as a proxy for self-assessed utility (Krueger and Schkade,

2008).³ This enables us to analyze the risk-reducing effects of contract farming that cannot be assessed using conventional monetary outcome variables (Dedehouanou et al., 2013).

We go beyond Dedehouanou et al. (2013), who were the first to relate contract farming to subjective well-being when analyzing overall life satisfaction. Although they point to various transmission channels linking contract farming to subjective well-being (e.g. income and productivity effects, security aspects, or health and work-related conditions), their outcome variable ‘overall life satisfaction’ does not make it possible to differentiate between these channels. In contrast, with our measure of perceived future security, we detach the security aspects of contract farming from income, productivity, and wealth effects, which we assess separately.

Finally, by using multiple outcome variables, we differentiate between flow and stock measures (Grootaert, 1983; Sahn and Stifel, 2003). Whereas the former capture short-term effects, which are often highly volatile, such as agricultural income or profit per acre, the latter assess more stable long-term impacts such as asset endowment and perceived future security.

We find that holding an outgrower contract has a significantly positive effect on the household’s asset endowment and the perceived future security of the household head. Thus, contract farming improves households’ welfare and performs a risk-reducing function in rural areas where markets are often imperfect and social safety nets underdeveloped. This is in line with research by Huddleston (2006), who describes beneficial effects of contract farming for oil palm farmers in Ghana and Indonesia, and Pagliettie and Sabrie (2012), who describe positive effects for rubber and sorghum outgrower schemes in Ghana. Nonetheless, our analyses show that being an outgrower has a significantly negative effect on a household’s agricultural income and the oil palm profit on contracted plots. Similarly, besides some positive effects, Pagliettie and Sabrie (2012) also identify inefficiencies in sorghum production under contract. However, given our finding that outgrowers are significantly more likely to engage in non-farm business, this poor performance might be caused by effort substitution. In this regard, our case study provides empirical evidence of a fairly beneficial connection between a large-scale investor in agricultural land and the surrounding local population.

³ Cummins (1996) identifies eight domains of life satisfaction: standard of living, personal health, life achievement, future security, personal relationships, personal safety, community connectedness, and spirituality/religion.

In our study we show that various bundles of property rights to land have a positive effect on agricultural income, plot profit per acre, and perceived future security. This is in line with analyses of monetary outcome variables by Abdulai et al. (2011), Goldstein and Udry (2008), and Besely (1995), who show the importance of property rights given the weak land administration system in Ghana, and with the findings of Gobien (2014), van Landeghem et al. (2013), and Huq et al. (2007), who show for Cambodia, Moldova, and Bangladesh respectively a positive relationship between landownership and measures of subjective well-being. Our study's additional contribution is that it shows the importance of secure property rights for local land users adjacent to a large-scale investment.

The remainder of the paper is organized as follows. Section 2 derives hypotheses about possible effects of contract farming and property rights to land; Section 3 provides background information on the oil palm investment and argues that the implementation of the outgrower scheme occurred as a quasi-natural experiment; Section 4, the empirical analysis, presents an overview of our data and first descriptive analyses, introduces the estimation strategy, and provides estimation results and the associated robustness tests; and Section 5 concludes.

2. Possible effects of contract farming and property rights

In general, the term “contract farming” comprises institutional arrangements that formalize a farmer's supply of a contracted commodity to a processing or retailing company (Grosh, 1994). Many studies find positive outcomes of this kind of farming. For example, they find that it helps participants to overcome various market shortages, be better integrated into the value chain, earn higher (agricultural) income, and be more productive (e.g. Bellemare, 2012, for Madagascar, Escobal and Caverio, 2012, for Peru; Rao and Qaim, 2011, for Kenya; Miyata et al., 2009, for China; Simmons et al., 2005, for Indonesia; Warning and Key, 2002, for Senegal). By facilitating access to credit, high value inputs, and better extension services than are usually provided in rural areas, outgrower schemes can enhance investment and efficiency (e.g. Begum et al., 2012, for Bangladesh; Key and Runsten, 1999, for Mexico; Glover, 1984, for less developed countries). In addition, contract farming can produce positive spillover effects for non-contracted crops and for neighboring farmers who do not hold a contract (e.g. Bellemare, 2012, for Madagascar; Govereh and Jayne, 2003, for Zimbabwe; Warning and Key, 2002, for Senegal). When outgrowers invest more, and over a longer period, than they would if they were independent farmers, and at the same time use their resources more

efficiently, they can accumulate extra wealth from higher returns to investment. Thus, participation in an outgrower scheme may also have a positive influence on households' aggregated assets.

Beyond lowering transaction costs, contract farming is often associated with risk sharing (e.g. Key and Runsten, 1999 for Mexico) and can therefore have a positive effect on perceived future security. By enabling households to secure the sales of their produce regardless of peak and lean seasons, it decreases price and income volatility (e.g. Michelson et al., 2012 for Nicaragua, Bolwig et al., 2009 for Uganda; Minten et al., 2009 for Madagascar). Agricultural extension service by the contracting firm may result in improved management practices, which in turn produce higher self-esteem (Dedehouanou et al., 2013 for Senegal). When such a positive change in attitude contributes to a better social standing, it may enhance outgrowers' access to social safety nets and thus have an additional positive influence on their perceived future security.

Many other researchers, however, find negative outcomes. They observe that contract farming can lead to risk transfers from companies to farmers and thus increase the already very unequal power relations (e.g. Singh, 2002, for India; Porter and Phillips-Howard, 1997, for Nigeria and South Africa; Little and Watts, 1994, for sub-Saharan Africa). This not only decreases farmers' autonomy, it also increases their vulnerability because of their heavy dependence on the contracted crop (e.g. Kirsten and Sartorius, 2002, for developing countries; Key and Runsten, 1999, for Mexico; Porter and Phillips-Howard, 1997, for Nigeria and South Africa). When a company secures only its own risks in such a setting, there is a strong probability that outgrowers' perceived future security and agricultural income will decrease. There is also a risk of hold-ups when processors, especially exporters, reject produce on the grounds of non-compliance with quality standards (e.g. Sivramkrishna and Jyotishi, 2008, for India). This can decrease outgrowers' agricultural income and in the long run also their asset endowment when they have to dispose of assets to mitigate income shocks.⁴

However, the negative effects of outgrower schemes may be caused not solely by the contracting company but also by the farmers. This can be explained by the principal-agent problem that is inherent to contract farming (Lajili et al., 1997). Because of time restrictions

⁴ Further negative effects have also been found: higher pressure and increased workloads can reduce farmers' subjective well-being (Dedehouanou, 2013), companies may extract maximal rents at the cost of the outgrowers, and the poorest farmers may be excluded from participation (Key and Runsten, 1999, for Mexico), rural social differentiation may be increased (e.g. Escobal and Cavero, 2012, for Peru; Singh, 2002, for India; White, 1997, for Indonesia), and the local political ecology may be ignored (Yaro and Tsikata, 2013, for Ghana).

and high monitoring costs, the principal (the company) is unable to fully monitor the agent (the outgrower). This opens the door to a moral hazard problem, where outgrowers may exploit the asymmetric information for their own benefit. Instead of following the intention of the contract and maximizing the outcome of the contracted plot, farmers may relocate inputs and effort to other plots or other tasks, resulting in a lower plot profit per acre and in turn possibly decreasing agricultural income.

In our particular setting the contract does not specify special quality standards, thus hold-up risks are expected to be low. This seems to be especially the case as the contracted crop is also traded at local markets, which can provide alternative sales channels and enhance outgrowers' bargaining power. Given that the investor, the company that buys the produce and does the processing, has underutilized production capacity and thus an excess demand, it is unlikely to breach contract on its side.⁵ Outgrowers, furthermore, cultivate multiple plots with various commodities; we therefore expect that they are not heavily dependent on the contracted crop. Consequently, we assume for our setting that the positive effects of outgrower schemes outweigh the negatives and suggest the following hypothesis:

Contract farming has a positive effect on asset endowment, perceived future security, agricultural income, and profit per acre.

With the establishment of a large-scale agricultural investment, land availability in the area declines and, with the increased pressure on the remaining resources, tenure security becomes of utmost importance. Many studies show that secure property rights to land provide incentives for long-term investment as they guarantee that future profits return to the landowner (e.g. Ali et al., 2012, for Pakistan; Ali et al., 2011, for Ethiopia; Abdulai et al., 2011, for Ghana; Fenske, 2011, for West Africa; Galiani and Schargrodsky, 2010, for Argentina; Deininger and Feder, 2009, on a general matter; Holden et al., 2009, for Ethiopia; Goldstein and Udry, 2008, for Ghana; Place and Otsuka, 2001, for Malawi; Gavian and

⁵ Our study took advantage of the structure of Ghana's underfinanced oil palm sector. Since the 1970s, when government-backed investment was based on land expropriation by the military government, four large-scale investments, now privatized, have dominated the sector. The rest of the sector consists of thousands of small-scale farmers cultivating roughly 85% of the estimated 285,000 ha of oil palm plantations (Poku and Asante, 2008). Because the capacity of the large-scale mills is larger than the big players' plantations can supply, investors are forced to obtain additional oil palm fruit (Fold, 2008). But as landownership in Ghana is fragmented among various chieftaincies, families, and individuals with rather low willingness to lease land on a long-term basis to foreigners (Kasanga and Kotey, 2001), it is rarely possible to acquire more land to convert into large-scale oil palm plantations. The investors have therefore been forced to link up with small-scale farmers. With government initiative and donor support, this has led over the past three decades to contract farming being implemented as a rather new rural institution, with the investors' aim being to run their mills efficiently and the public's aim being to close the persistent yield gap between large-scale plantations and small landholdings.

Fafchamps, 1996, for Niger; Besley, 1995, for Ghana). Thus, property rights to land increase the productive use of land resources (e.g. Bellemare, 2013, for Madagascar; Chand and Yala, 2009, for Papua New Guinea; Holden et al., 2009, for Ethiopia; Goldstein and Udry, 2008, for Ghana; Deininger and Jin, 2006, for Ethiopia; Banerjee et al., 2002, for India) and in turn enable landowners to transfer effort from agricultural activities and property protection to non-farm business or the labor market (Field, 2007). Thus, secure land rights can translate into higher profit per acre and higher agricultural income. Apart from efficiency gains through higher productivity, clearly defined property rights also facilitate land sales and rentals, which increase factor mobility and, in turn, allocation efficiency (Deininger and Chamorro, 2004, for Nicaragua, Besley, 1995, for Ghana).

Secure property rights to land can also serve as collateral, which facilitates access to credit (Carter and Olinto, 2003, for Paraguay; Feder and Nishio, 1998, for Thailand; Feder and Onchan, 1987, for Thailand) and enhances a landowner's position in social networks (Binswanger et al., 1995). These rights thus increase food security by enhancing a landowner's ability to cope with shocks (Deininger, 2003) and, by reducing exposure to risks, should have a positive effect on perceived future security. However some studies point out that perceived tenure security is often more crucial than registered property rights (Awuah and Hammond, 2013; Abdulai, 2006; Dekker, 2003).⁶ Therefore, our second hypothesis is:

Perceived secure property rights to land have a positive effect on perceived future security, agricultural income, and profit per acre.

3. Research setting

3.1 Contract farming as a quasi-natural experiment

In 1976 the Ghana Oil Palm Development Company (GOPDC) was established as a state-owned company in the Kwaebibirem District of the Eastern Region in order to expand the oil palm business and foster development in this remote area (Adjei-Nsiah et al., 2012; Fold and Whitfield, 2012; Fold, 2008; Huddleston and Tonts, 2007; Huddleston, 2004). Today it is the biggest palm oil producer in Ghana and the biggest employer in its district. In 1995, the

⁶ This is in line with findings by Abdulai and Hammond (2010), for Ghana, that land registration is not a prerequisite for obtaining formal loans and Jacoby and Minten (2007), for Madagascar, that land titles do not result in higher investment.

Belgian investor Société d'Investissement pour l'Agriculture Tropicale (SIAT) took over the majority shares of the company (GOPDC, 2013; SIAT, 2013). In the course of privatization the state transferred a 50-year leasehold (as of 1976) for the Kwaie Concession directly to the investor. This concession comprises 8,953 ha including the land containing the mill and housing structures (Republic of Ghana, 1976). In 2000 a second 50-year leasehold, the 5,205 ha Okumaning Concession, was transferred to GOPDC to expand its oil palm plantations (Republic of Ghana, 2008).⁷

Complementary to the plantation system, an outgrower scheme was established in 1986 as a World Bank-supported development project with the twofold aim of running the mill in an economically efficient manner and integrating the local population into the economy by recruiting as many outgrowers as possible from a broad pool of rural farmers (World Bank, 1994; interview with Lands Commission senior official; interview with GOPDC senior manager)⁸. Expert interviews and focus group discussions revealed that the outgrower scheme had been expanded in waves over the years.⁹ This expansion did not follow a clear pattern but came about arbitrarily as a consequence of the differing financial status and changing policies of various GOPDC managements. When a decision had been made as to the time and extent of an expansion, the management would then select the area where it would be put into effect. Each particular expansion wave was thereby strictly limited to a demarcated area to keep transaction costs low for inspecting potentially suitable farms, carrying out training activities, and later collecting the fruit (interview with GOPDC senior manager). It was thus impossible to anticipate where – if at all – to expect the next extension wave. Hence, because the pace, scope, and sites of expansion were unpredictable, farmers could not migrate strategically in order to self-select into the scheme.

⁷ For more details on GOPDC please refer to Vāth (2013).

⁸ Our quantitative database was enriched by semi-structured expert interviews conducted in the Kwaebibirem District and Accra in October and November 2011. Due to the sensitiveness of the topic, interviews were not recorded. To guarantee the anonymity of the interviewees, we reveal their (rough) position and organization but not their names.

⁹ We also conducted focus group discussions from September to November 2011 with groups of independent farmers and outgrowers in the Kwaebibirem District. They were conducted in the local languages Twi and Fante, recorded and transcribed in English. Between 7 and 15 participants per group were selected according to perceived wealth levels.

The company offered a contract at short notice to those farmers who had a ready-to-cultivate plot in a specific area at a specific time (interviews with GOPDC senior managers; interview with outgrower association executives).¹⁰ Farmers considered themselves lucky to get a one-time offer by the time their plots were cleared. They had the option to refuse the offer but, according to interviews with the executives of the outgrower association and focus group discussions with farmers, the rejection rate was as good as zero. According to Fold (2008) and Huddleston (2006), farmers were keen to access credit and technology and were motivated to sign a contract.

However, farmers were only eligible to participate if they could prove secure land use rights for a period of 25 years by holding either documented property rights or a long-term sharecropping arrangement (GOPDC, n.d.). Given the weak land administration system in Ghana, deed registration is poor in rural areas and titles to verify ownership rights are to date not available in the Kwaebibirem District. Nevertheless, the predominantly customary land tenure system of the Akyem area around GOPDC proved to be dynamic and partially filled this gap (Amanor, 1999; Gyasi, 1994) as family heads and chiefs began to document customary rights upon request and for a small fee. This enabled landowning farmers to enter into an outgrower contract with a kind of “informal deed” (GOPDC, n.d.). The cocoa industry of the late 19th century had made long-term sharecropping arrangements common in Akyem (Amanor and Diderutuah, 2001; Amanor, 1999; Gyasi, 1994).¹¹ GOPDC therefore also offered tripartite contracts to farmers who had held a sharecropping agreement for at least 25 years. Such contracts were similar to those offered to farmers possessing customary ownership except that the landlord had to agree by signing the contract (GOPDC, n.d.).

Independent oil palm farmers also rely on long-term land use rights. Given the high investment costs and the late break-even point around the seventh year after planting (Poku and Asante, 2008), they only grow oil palm if they hold customary ownership or long-term sharecropping arrangements that are expected to guarantee usufruct rights. As the poorest are unlikely to possess secure land rights for a long period and to be able to afford high

¹⁰ A ready-to-cultivate plot is one that is not currently under cultivation. Farmers in our research area typically cultivate various plots with food (maize, plantain, cocoyam, cassava etc.) and cash crops (cacao, citrus and oil palm) that can be partly intercropped (interview with Ministry of Food and Agriculture official). Given the different crop cycles over multiple farms and periods under fallow, rural households have from time to time a ready-to-cultivate plot available.

¹¹ As has been shown for other parts of the world (Otsuka et al., 1992), sharecropping is a flexible instrument for improving allocation efficiency of land and labour resources as a reaction to land pressure caused by the establishment of plantations and population growth. Thus, sharecropping arrangements tend to be as important as customary claims for assessing long-term land use rights.

investment costs, they are unable to engage in any kind of commercial oil palm farming. Watts (1994) confirms that the poorest do not participate in GOPDC's outgrower scheme. Given this exclusion, which is caused by the nature of the crop and thus also pertains to independent oil palm farmers, the poorest do not belong to the population under consideration in our study and thus cannot cause any bias.

Furthermore, GOPDC did not apply selection criteria specific to the characteristics of the plot. Interviews with two managers revealed that the company merely organized a short farm visit to confirm that the potential land for the scheme was low land. Low land is not intrinsically of better quality than high land, but it is more suitable for oil palm cultivation, and Ghanaian farmers have long balanced their needs for low and high land for various crops through sharecropping arrangements (Amanor and Diderutuah, 2001; Gyasi, 1994). Thus, the visit can be understood as a pro forma measure. This holds true especially as technical suitability such as the soil fertility or rainfall patterns of the plots under consideration were also not assessed because of measurement costs and the desire to expand the outgrower scheme quickly to run the mill efficiently (interviews with GOPDC senior managers). Moreover, neither the outgrower association executives nor GOPDC's staff reported that the criterion of accessibility played a role. Even though it was at first declared that a plot should not be more than 400 meters from an accessible road (GOPDC, n.d.), the underdeveloped road system allowed for a completely arbitrary definition of accessibility. Thus, differences in the performance of independently managed plots and outgrower plots are not caused by GOPDC's plot selection criteria, because these criteria were either common knowledge (and therefore applied without the help of GOPDC) or only existed on paper (and thus were not enforced).

Another set of selection criteria was supposed to be used to assess individual characteristics. Originally, GOPDC intended to target Ghanaian nationals aged 18 to 45, but Huddleston's data (2006) reveals that the age criterion was not implemented. This was confirmed in interviews with two outgrower association executives and three GOPDC managers. We did not find any evidence that GOPDC tried to assess personal or socio-economic characteristics. Hence, differences in the performance of farmers with and without contract are not based on selection bias according to individual characteristics. We can therefore claim that contracts were allocated in a quasi-natural experiment.

3.2 The status quo

At the time of data collection 7,279 outgrowers were linked to GOPDC. They are obliged to sell all oil palm fruit from the contracted plot to the company, which, in turn, pays them according to a formula based on the world market price for crude palm oil. The outgrower provides the land and the labor force, and GOPDC provides inputs, credit, and extension services (GOPDC, n.d.; interview with GOPDC manager; interview with outgrower association executives; focus group discussion with outgrowers).

In addition to the outgrower scheme, GOPDC also makes third party purchases to utilize its production capacities. Within a 30 km radius of the company's oil palm mill some 3,000 independent farmers decide on the spot whether they will sell their produce to GOPDC or the local market (interview with Ministry of Food and Agriculture official). Although the investor and the local economy compete at input markets, their output markets are distinct (Poku and Asante, 2008). Thus, they are able to pay different prices for oil palm fruit. As GOPDC pays according to world market prices, it tends to pay more than the local market during the peak season. This is because the Ghanaian market is too small to affect the world market. In contrast, when oil palm fruit is scarce the domestic market is more attractive as local competition for the fruit increases prices for farmers. While GOPDC manufactures standardized palm oil for industrial purposes, small-scale mills in the area produce the locally demanded red cooking oil, which cannot be manufactured by the investor (Osei-Amponsah et al., 2012). Consequently, the company is constantly under pressure to deal with problems with the local population, in order to guarantee a sufficient delivery of oil palm fruit.

Besides the independent farmers who are free to sell to anyone, outgrower farmers also tend to sell to local markets (Fold and Whitfield, 2012; Fold, 2008). They are likely to breach contracts if they feel unfairly treated by the company. To prevent such side-selling, GOPDC can improve its relations with the local population by acting as a good corporate citizen or by competing with the market women and the surrounding small mills for higher oil palm fruit prices. To take legal action against outgrowers seems to be no comprehensive solution, as transaction costs are high given Ghana's slow and costly jurisdiction (interviews with GOPDC senior managers).

In the past the company sometimes coped by making more investments in infrastructure such as roads, electricity poles, boreholes, educational institutions, and medical clinics, and sometimes by carrying out fewer social responsibility activities and instead offering farmers

higher prices (interviews with GOPDC senior managers; focus group discussion with outgrowers; V  th, 2013). Considering the conflict-sensitive and at the same time highly competitive environment, it has not yet been possible to forge stable links between the investor and the local population. There is always a danger of dissension being caused by common daily operational difficulties such as changing price policies, reduced absorption capacity of the mill due to repairs, or delay of payments due to force majeure (interviews with GOPDC senior managers). Nevertheless, there is more potential for satisfying the needs of both the investor and the local population in a dynamic environment like that of our study area than in a context where a monopolistic company has the power to dictate its conditions to contract farmers.

4. Empirical analysis

4.1 Data and descriptive statistics

Our quantitative analysis is based on a household survey (N= 824) conducted from October to December 2010 within a 30 km radius of the mill. Access to the company’s database enabled us to draw a random sample (confidence level: 95%, confidence interval: 5). We interviewed 436 outgrowers, spread across 47 villages, out of a total population of 7,279 households (see Table 1).

Table 1

Populations and sampling

Contractual arrangement	Population size	Sample size
Outgrowers	7,279	436
Independent farmers	unknown \approx 3,000	388
Observations	\approx 10,279	824

Note: Outgrowers based on random sampling; independent farmers based on two-stage sampling with community size as stratum and clustering at village level.

We also interviewed 388 independent farmers out of an estimated population of 3,000 households, sampled in a two-stage selection process. Village size served as a stratum to sample proportionally 25 of these 47 communities. In small villages (<1,000 inhabitants) we interviewed all the independent oil palm farmers. In medium (>1,000–5,000 inhabitants) and large villages (>5,000 inhabitants) we applied a second-stage cluster sampling. We excluded

migrant farmers who had been in the catchment area less than 24 years – since the introduction of the outgrower scheme – to avoid biases through migration effects.

We follow Johnson et al. (1990) in generating the outcome variables aggregated assets (i.e. equipment, appliances, houses and land owned by a household) and household's agricultural income per year. To assess productivity effects, we generate the profit per acre as an additional outcome variable.

We modify our sample towards a plot level data set (N= 761), to capture the fact that households typically cultivate several plots (Amanor and Diderutuah, 2001). A household may cultivate oil palm independently on its plots, while at the same time having other plots under contract. This is the case for more than 90% of households in our sample. Besides oil palm, households cultivate other cash crops (i.e. cocoa and citrus) and food crops on separate plots. Our sample comprised only oil palm plots with trees that were at least four years old, to ensure that crop production had already begun. Plots with other crops were excluded from the plot level analysis. We included only plots belonging to farmers who sell their produce per kilogram, to avoid measurement errors when calculating profits for those who sell per bunch. We follow the Cook's Distance criterion to eliminate outliers that might distort our analysis. Thus, we distinguish between plots under outgrower contract and independent oil palm plots without any contractual arrangements.

Following Cummins (1996), we take household head's perceived future security as an additional dependent variable to complement mainstream economic measures with a measure of subjective well-being. On a scale of 0 to 10, 0 represents a very low and 10 a very high interviewee satisfaction with future security. Table 2 summarizes medians of these outcome variables with regard to contractual arrangement.

Table 2

Descriptive statistics of outcome variables at household level (medians)

OUTCOME VARIABLES	Data	Observ.	Medians (sd)				Diff. in medians
			Outgrowers		Independent farmers		
Aggregated assets	HH level	824	1,126	(24,274)	732	(3,673)	***
Perceived future security	HH level	824	7	(2.221)	5	(1.967)	***
Agricultural income per year	HH level	824	8,660	(50,119)	9,340	(92,524)	*
Output per acre per year	Plot level	761	721	(815)	930	(741)	***

Note: As all outcome variables are strongly skewed to the right, medians are more informative than means. Currency is Ghana cedi (exchange rate 1 October 2010: 1 GHS = 0.70 USD). Differences in medians according to Wilcoxon's rank sum test.

Wilcoxon's rank sum tests show that outgrowers report significantly higher values than independent farmers for aggregated assets (1,126 vs 732 GHS) and perceived future security (7 vs 5). This is in line with Vāth's (2013) qualitative analysis of focus group discussions, which shows improved asset endowment and credit access for outgrowers. In contrast, independent farmers outdo outgrowers with regard to household's agricultural income (8,660 vs 9,340 GHS) and oil palm profit per acre (721 vs 930 GHS). This is rather surprising in view of Huddleston's (2006) finding that outgrowers realize higher incomes and Vāth's (2013) finding that outgrowers apply new agricultural technologies and techniques.

Table 3

Descriptive statistics of independent variables (means)

CATEGORIES	VARIABLES	Means (sd)				Diff. in means
		Outgrowers (436)		Independent farmers (388)		
Land-related characteristics	Own land (in acres)	6.202	12.81	4.821	5.519	**
	Land under cultivation (in acres)	17.27	10.47	9.410	5.794	***
	% of land with right to sell and use as collateral	0.251	0.364	0.453	0.460	***
	% of land with right to use as collateral	0.0520	0.186	0.0880	0.245	*
	Sharecropping factor 1/3 for landlord (plot level)	0.712	0.453	0.426	0.495	***
	Sharecropping factor 1/2 for landlord (plot level)	0.0200	0.140	0.0236	0.152	
	Average plot size (in acre)	4.657	2.795	5.273	3.062	***
	Minutes to walk to plot	51.18	42.62	50.08	28.08	*
Oil palm specifics	Age of trees (plot level)	13.12	5.719	9.411	4.262	***
	Number of prunings	1.284	0.608	1.059	0.517	***
	Number of fertilizer applications	0.158	0.465	0.0928	0.672	***
	Use of a cover crop	0.963	0.188	0.845	0.362	***
	Improved techniques dummy	0.328	0.470	0.131	0.388	***
Labor characteristics	Use of hired labor	0.956	0.204	0.912	0.283	**
	Use of household labor	0.683	0.466	0.611	0.488	**
	1st occupation not in agriculture	0.0413	0.1991	0.0850	0.2793	***
	Head: absences > 6 months/yr	0.0573	0.233	0.106	0.308	**
	Household number	6.041	2.844	4.054	2.091	***
Security	Taken a loan within last year	0.179	0.384	0.0567	0.232	***
	Member of a self-help group	0.360	0.481	0.294	0.456	**
Socio-demographic characteristics	Age of head	52.86	10.86	47.66	12.92	***
	Female-headed household	0.112	0.316	0.0773	0.267	*
	Years of schooling of head	8.362	0.223	7.193	0.229	
	Head is married	0.826	0.380	0.814	0.389	
	Household is not Akan	0.255	0.436	0.258	0.438	
Village level characteristics	Large village (>5,000)	0.255	0.436	0.232	0.423	
	Small village(>1,000)	0.294	0.456	0.289	0.454	
	Traditional area: Bosome	0.0229	0.150	0.0387	0.193	
	Traditional area: Kotoku	0.463	0.499	0.407	0.492	

Note: Sample contains only household heads; significance levels at: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; for dummies: yes = 1, no = 0, for percentages: values within a range from 0-1; dummy for improved techniques = 1 if household uses cover crops, applies fertilizer at least once a year, and prunes at least twice a year; two sample tests of proportions for dummies, otherwise Wilcoxon rank-sum tests are applied.

An overview of different sets of independent variables such as land-related characteristics, oil palm specifics, labor characteristics, access to security mechanisms, household and individual level socio-demographics, and village characteristics is presented in Table 3.

Outgrowers and independent farmers are quite similar with regard to time-invariant socio-demographic and village level characteristics. Other control variables differ considerably, which might be a consequence of different development paths induced by the length of time the contract has been held. In particular, outgrowers own larger areas of land and have more land under cultivation than independent farmers. Descriptive analysis reveals that roughly 75% of their non-contracted plots were acquired after they became outgrowers. Independent farmers have to invest more money to establish oil palm plots than outgrowers do and they have to build savings to mitigate shocks. Outgrowers invest less because they receive subsidized inputs and credit from GOPDC, and they can mitigate shocks by accessing additional land or accumulating productive assets such as a chainsaw or a vehicle.

4.2 Estimation strategy

Our data from a quasi-natural experiment enables us to run various OLS regressions for the outcome variables: logged aggregated assets (y_1), perceived future security (y_2),¹² logged agricultural income (y_3), and logged plot profit per acre (y_4). We thus focus on the effect of holding an outgrower contract (x_1) and the effect of different bundles of property rights to land (x_2 and x_3).

We identify the effect of an outgrower contract in three ways. We start our sets of estimations with an outgrower dummy for households holding at least one plot under contract, then in a second step replace it with the logged size of the land under contract, and finally in a third step replace it with the number of years a household has held a contract. This enables us to capture the effect of holding a contract from different angles. The dummy variable tests for an on/off effect of contract farming independently of the size of the land under contract, whereas the logged size of the land under contract tests for size effects in association with economies of scale (assuming that a percentage increase in the size of land under contract has a constant effect), and the number of years a household has held a contract tests for time effects (assuming that experience matters).

¹² Ferrer-i-Carbonell and Frijters (2004) find that ordinal and cardinal treatments of subjective well-being variables produce similar results. However, as a robustness check we complement our OLS estimates with logistic regressions.

With regard to property rights to land, we distinguish between two bundles of rights. This enables us to capture varying qualities of customary land rights when it comes to mortgage and disposal. The lack of clearly documented land rights in Ghana obliged us to use reported rights instead of registered deeds. At the plot level we differentiate between plots with the right to sell them and to use them as collateral (x_2) and plots with the right to use them as collateral only (x_3) (both measured as dummies). At household level we stick to these categories, but since households cultivate several plots, each of which might be associated with a different bundle of property rights, we calculate (x_2) and (x_3) as percentages of the total amount of land owned and convert them into a scale of 0 to 1. These proxies enable us to estimate the effects of property rights at plot and household level. Even though, we cannot ensure that property rights to land are exogenous and are therefore unable to estimate a causal effect, correlations might give us a hint on their importance.¹³

In a first step, we estimate the net effects of holding a contract when controlling for exogenous time-invariant socio-demographic and village level characteristics. In a second step, we introduce the two bundles of property rights and further controls for land-related variables, oil palm specifics, access to security mechanisms, labor characteristics, and productive assets. Thus, our estimation strategy follows the general model:

$$y_{1-4} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 c_1 + \dots + \beta_{3+r} c_r + \varepsilon$$

with $r > 1$

y_1 = aggregated assets (log)

y_2 = perceived future security

y_3 = agricultural income (log)

y_4 = profit per acre (log)

β_0 = constant

$\beta_1 - \beta_{3+r}$ = parameters related to the corresponding individual variables

x_1 = outgrower dummy (alternatively: size of land under contract (log) or duration of contract in years)

x_2 = % of land with the right to sell it and to use it as collateral (for plot level: dummy)

x_3 = % of land with the right to use it as collateral (for plot level: dummy)

c = control variables for land-related characteristics (not applicable for y_1) oil palm specifics, labor characteristics, access to security mechanisms, socio-demographics, and village level characteristics

ε = error term

¹³ We assume that the bundles of property rights to land are more important than sharecropping. Nevertheless, we control for sharecropping factors at plot level.

For estimations at household level standard errors are clustered at village level, whereas plot level data is clustered at household level.¹⁴ In a second step, we limit our plot level analysis to independently managed plots. This enables us to compare the productivity of outgrowers and independent farmers on plots that are free from GOPDC's sphere of direct influence and thus identify possible spillover effects.

Finally, we calculate the probability of outgrowers being engaged in a non-farm business by using the following logistic regression model:

$$\pi(x) = \frac{e^{\beta_0 + \beta_1 x_1 + \beta_2 c_1 + \dots + \beta_{3+r} c_r + \varepsilon}}{1 + e^{\beta_0 + \beta_1 x_1 + \beta_2 c_1 + \dots + \beta_{3+r} c_r + \varepsilon}}$$

with $r > 1$

$\pi(x)$ = probability of being engaged in a non-farm business

β_0 = constant

β_{1-3+r} = parameters related to the corresponding individual variables

x_1 = outgrower dummy (alternatively: size of land under contract or duration of contract in years)

c = control variables for land-related characteristics, oil palm specifics, labor characteristics, access to security mechanisms, socio-demographics, and village level characteristics

ε = error term

We thus investigate whether holding an outgrower contract encourages households to engage in income generating activities beyond agriculture. Once again, we differentiate between the net effect (controlling for socio-demographic and village level characteristics only) and the effects when including additional controls.

4.3 Results

As Table 4 shows, we find that participating in the outgrower scheme has a highly significant and positive effect on household's aggregated assets (models 1, 2, 3, and 4). When controlling for exogenous socio-demographic and village level characteristics, holding an outgrower contract leads to a 41.4% increase in households' aggregated assets (model 1). When we add additional control variables, this effect remains highly significant and there is a similar increase (40.5%) in the household's aggregated assets (model 2). The positive effect is confirmed when we replace the outgrower dummy with the continuous variables logged

¹⁴ Alternatively, we estimate our models with sample weights and linearized standard errors and find similar results.

acreage of land under contract and years of holding a contract (models 3 and 4). Doubling the size of the contracted land increases aggregated assets by 5.3% (model 3), and one additional year of holding a contract results in a 2.0% increase (model 4). As both coefficients are quite low, we expect the on/off effect of outgrower contracts to be more important than size- and time-related effects.

In the subsequent models we therefore focus on the outgrower dummy, which might capture the effect of contract farming best from a content-based perspective. Nevertheless, for all the models in the remainder of this paper, our results hold when replacing the outgrower dummy with the size of contracted land and the number of years of holding a contract. The same holds true for estimating the net effects instead of controlling for a wide range of variables.

Table 4

Estimations at household level

	(1)	(2)	(3)	(4)	(5)	(6)
	Agg. assets (log)	Agg. assets (log)	Agg. assets (log)	Agg. assets (log)	Future security	Agric. income (log)
VARIABLES	OLS	OLS	OLS	OLS	OLS	OLS
Outgrower dummy	0.414*** (0.102)	0.405*** (0.100)			2.220*** (0.216)	-0.397*** (0.104)
Size of contract land (log)			0.0532*** (0.0113)			
Years of holding contract				0.0204*** (0.00504)		
% of land with right to sell and use as collateral					0.486* (0.281)	0.756*** (0.170)
% of land with right to use as collateral					0.387 (0.316)	0.418** (0.180)
Socio-demographic and village characteristics	yes	yes	Yes	yes	yes	yes
Other controls	no	yes	Yes	yes	yes	yes
Observations	824	824	824	824	824	824
R-squared	0.176	0.192	0.201	0.190	0.218	0.132
Adjusted r-squared	0.164	0.176	0.185	0.174	0.198	0.107
Test of joint significance	F(12,46)= 24.87***	F(16,46)= 26.18***	F(16,46)= 27.17***	F(16,46)= 29.10***	F(20,46)= 20.36***	F(23,46)= 15.63***
Highest variance inflation factors (without age and age squared)	1.76	2.08	2.08	2.09	3.26	3.28
Ramsey's RESET test (p- value)	0.607	0.888	0.508	0.967	0.984	0.241

Note: Clustered standard errors at village level; significance levels at: *** p<0.01, ** p<0.05, * p<0.1. Controls for labor characteristics, access to security mechanisms, and socio-demographic and village level characteristics are reported in Appendix A. Variance inflation factors for age and age squared around 40.

Model 5 reveals a 2.2 points higher level of perceived future security for outgrowers than for independent farmers and thus confirms earlier findings. Given the scale of 0 to 10, this is a tremendous positive effect of contract farming. Moreover, the right to sell the land and also to use it as collateral has a positive effect on perceived future security but the effect is only weakly significant. Thus, the finding that a 100% increase of land with those rights leads to a 0.5 point increase in perceived future security should be treated with caution.¹⁵

With regard to households' agricultural income, model 6 reveals strong and highly significant effects of the two bundles of property rights under consideration. We find that 100% of land with the right to sell and also to use it as collateral increases households' agricultural income by 75.6%, and that 100% of land with the right to use it only as collateral still results in a 41.8% increase (model 6). Thus, our analysis lends support to the idea that even an incomplete bundle of property rights is beneficial for households in rural areas where land administration systems are weak. In contrast, holding an outgrower contract decreases agricultural income by 39.7% (model 6). With a highly significant effect, this result contradicts our earlier findings of a beneficial effect for contract farming.

As Table 5 shows, plot level analysis also reveals a negative effect as plots under contract show a 27.2% decrease in profit per acre (model 1). To verify whether this effect holds for all oil palm plots cultivated by an outgrower household, we limit our subsequent analysis to independently managed plots (i.e. we exclude plots under contract). Model 2 reveals that the outgrower dummy is insignificant and does not have an effect on independently managed plots.¹⁶ Thus, contract-holding households are not less productive in general – it is only on their plots under contract that they are less productive. In line with Lajili et al. (1997), this can be explained by principal-agent problems.

¹⁵ With regard to subjective well-being measures, we point to a substitutive relationship between contract farming and property rights to land, as they expect both to fulfil rural households' security needs, and thus follow Palmer's (1998) diminishing marginal returns argument.

¹⁶ These results also hold when estimating the profit per plot.

Table 5

Estimations at plot level

VARIABLES	(1)	(2)
	All plots Profit per acre (log) OLS	Independent plots Profit per acre (log) OLS
Plot under outgrower contract	-0.272*** (0.0596)	
Outgrower dummy		-0.0778 (0.0895)
Right to sell plot and use as collateral	0.423*** (0.102)	
Right to use plot as collateral	0.0330 (0.0896)	
Socio-demographic and village characteristics	yes	yes
Land-related and other controls	yes	no
Observations	761	539
R-squared	0.221	0.04
Adjusted r-squared	0.191	0.02
Test of joint significance	F(28,463) = 14.8***	F(12, 273) = 2.22**
Highest variance inflation factors (without age and age squared)	2.20	1.72
Ramsey's RESET test (p-value)	0.73	0.32

Note: Clustered standard errors at household level; significance levels at: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Controls for land-related characteristics, oil palm specifics, labor characteristics, access to security mechanisms, socio-demographic and village level characteristics are reported in Appendix A. Variance inflation factors for age and age squared around 40.

However, with regard to property rights to land, we find that holding a plot with the right to sell it and to use it as collateral has a high and significant effect, resulting in a 42.3% increase in plot profit per acre in model 1.¹⁷ Whereas all our estimations fully support the hypothesis that secure property rights to land have a positive effect on perceived future security, agricultural income, and profit per acre, the contradictory findings for contract farming call for further investigation.

Given that contract farmers' profit on independently managed plots is similar to that of farmers without a contract, we can reason that they divert effort from contracted plots. The estimations in Table 6 support this explanation. Whether we estimate the net effect of contract farming by controlling only for socio-demographic and village level effects (model 1) or by including further control variables (model 2), we find that outgrowers have a significant and roughly 10% higher likelihood of engaging in non-farm activities.

¹⁷ Given the lack of degrees of freedom, we cannot control for the effect of property rights to land in model 2.

Table 6

Estimations of likelihood of engaging in non-farm business at household level

VARIABLES	(1) Logit	(2) Logit
Outgrower dummy	0.097*** (0.0330)	0.092*** (0.0380)
Socio-economic and village characteristics	yes	yes
Land-related and other controls	no	yes
Observations	824	824
Wald's χ^2	$\chi^2(12) = 88.56***$	$\chi^2(22) = 197.09***$
Pseudo R-squared	0.054	0.065

Note: Marginal effects are displayed. Clustered standard errors at village level; significance levels at: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Controls for land-related characteristics, labor characteristics, access to security mechanisms, and socio-demographic and village level characteristics are reported in Appendix A.

To sum up: our hypothesis that contract farming has a positive effect holds true for the outcome variables aggregated assets and perceived future security, but has to be rejected for agricultural income and profit per acre. Despite the interpretation that poor agricultural performance is a result of effort substitution, we can nevertheless conclude that contract farming is to some extent beneficial for farmers in the vicinity of a large-scale investment.

4.4 Further robustness checks

In Appendix B we provide further robustness tests. The ordered logit model in Table 10 shows that the positive outgrower effect on perceived future security also holds for a different estimation procedure. In Table 11 we complement the estimation of oil palm profit per acre (models 1 and 2 in Table 5) with estimations of absolute profit per plot. Our similar results show that ratio fallacies of spurious correlation induced by indices of a common component do not disturb our estimations (Kronmal, 1993). The models in Table 12 are based on the various models presented in Table 4 and refer to all our dependent variables of interest. To avoid possible bias caused by large landowners, we exclude households that own more than 30 acres from the analysis (what we call 'extreme' landowners). The coefficients for the outgrower dummy (models 1, 2, 5, and 6), the size of land under contract (model 3), the years of holding a contract (model 4), and the two bundles of property rights (model 6) stay significant and keep the same sign. Similarly, significance levels and signs for our variables of interest hold when we exclude extreme landowners from the earlier plot level analysis shown in Table 5 (models 1 and 2 in Table 13).

In another set of robustness checks, we differentiate between landowning and landless households. All the estimations for landowners confirm the earlier results at household level (models 1, 3, and 5 in Table 14) and at plot level (model 1 in Table 15). They emphasize that the right to sell the land and also to use it as collateral has a positive effect on agricultural income and plot profit per acre and that holding an outgrower contract affects aggregated assets and perceived future security positively, whereas it has a negative effect on agricultural income and plot profit per acre. The positive effect of being an outgrower on aggregated assets and perceived future security also holds true for landless households (models 2 and 4 in Table 14). Similarly, the negative effect of contract farming on agricultural income and plot profit is confirmed (model 6 in Table 14). Moreover, models 3 and 4 in Table 14 reveal that landowning and landless farmers who hold an outgrower contract are equally productive on independently managed plots. Thus, additional robustness checks indicate that our results are highly robust to model specifications and changes in estimation techniques.

5. Conclusion

In this study we found that property rights matter. We found that holding the right to use the land as collateral already has a positive effect on households' agricultural income in rural areas where land administration is weak and cumbersome. Further, having the right both to sell the land and to use it as collateral has a positive effect on perceived future security, agricultural income, and profit per acre. Nevertheless, we have to keep in mind that it is unclear if our findings go beyond identifying correlations. As we cannot be sure if property rights are exogenous in our setting, results have to be taken with caution.

In contrast, our setting, where contracts were allocated as in a quasi-natural experiment, allows us to identify a causal effect. With regard to contract farming we observed mixed effects. While holding a contract has a positive effect on a household's aggregated assets and, according to our interviewees, on perceived future security, the effect on agricultural income is negative. Furthermore, profits on contracted plots were lower than on independently managed plots. Nevertheless, we provided further evidence that contract farmers tend to benefit from the scheme as inputs and credit offered by the investor enable them to diversify risks. Thus, they show a 10% higher probability than independent farmers of engaging in non-farm business. Given that outgrowers' profits on non-contracted plots do not differ

significantly from those of independent farmers, we identified principal-agent problems and the associated effort substitution as a plausible explanation for their lower profits on contracted plots.

In terms of policy implications we conclude that large-scale investments in agricultural land can be good for rural development if they respect existing bundles of property rights and if they integrate the local population. However, we do not claim that our results can be generalized, but rather point to an exemplary case which is bound to a specific setting. One way an investor can do this is by offering contracts to farmers. Outgrower schemes offer long-term security as they enhance participants' asset endowment and perceived future security. This gives rural households room to maneuver and enables them to invest in non-farm activities. At the same time we observe that in the short run farmers are able to earn higher agricultural income and profit per acre when they bear the full risk for independently managed plots. Therefore, economic integration of the local population seems to be most beneficial if investors aim at a mix of outgrower schemes and buying oil palm fruit from independently managed plots.

However, even under such favorable conditions, it would be illusory to interpret large-scale, land-based investments per se as an instrument to reduce poverty. In their first and narrow sense they aim to generate profits for their shareholders. In doing so, they can simultaneously benefit rural farmers who participate in a well-designed contract farming scheme. But, as highlighted in our study, the poorest and neediest people do not benefit from such schemes as they are often not eligible to participate. Regardless of possible spillover effects and corporate social responsibility, large-scale investment in agricultural land therefore runs the danger of fostering inequality in its neighborhood. Thus, host countries aiming for sustainable rural development should avoid a crowding-out of development projects by large-scale agricultural investments and rather initiate development projects to support disadvantaged population groups in the vicinity of an investment.

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Appendix A: Full models

Table 7

Estimations at household level

	(1)	(2)	(3)	(4)	(5)	(6)
	Agg. assets (log)	Agg. assets (log)	Agg. assets (log)	Agg. assets (log)	Future security	Agric. income (log)
VARIABLES	OLS	OLS	OLS	OLS	OLS	OLS
Outgrower dummy	0.414*** (0.102)	0.405*** (0.100)			2.220*** (0.216)	-0.397*** (0.104)
Size of contract land (log)			0.0532*** (0.0113)			
Years of holding contract				0.0204*** (0.00504)		
% of land with right to sell and use as collateral					0.486* (0.281)	0.756*** (0.170)
% of land with right to use as collateral					0.387 (0.316)	0.418** (0.180)
Own land in acres (log)					0.0197 (0.0303)	-0.00999 (0.0159)
Cultivated land in acres (log)					0.225* (0.129)	0.464*** (0.103)
Applying improved techniques						0.0351 (0.128)
Use of hired labor						-0.0153 (0.187)
Use of household labor						-0.0978 (0.0892)
1st occupation not in agric.		0.408** (0.157)	0.410** (0.158)	0.388** (0.156)	0.238 (0.421)	-0.368*** (0.106)
Head: absence > 6 months/yr		0.0410 (0.167)	0.0280 (0.168)	0.0600 (0.164)		0.0247 (0.143)
Taken a loan within last year		0.0519 (0.123)	0.0396 (0.122)	0.0627 (0.120)	0.0682 (0.257)	0.0784 (0.116)
Member of a self-help group		0.240*** (0.0569)	0.234*** (0.0570)	0.245*** (0.0575)	0.239 (0.154)	0.109 (0.0865)
Subjective household income					-0.0251 (0.0757)	
Years of schooling head	0.0281*** (0.00982)	0.0233** (0.00917)	0.0221** (0.00935)	0.0228** (0.00915)	-0.0284* (0.0156)	-0.0240*** (0.00750)
Age of head	0.00929 (0.0195)	0.0128 (0.0199)	0.0104 (0.0197)	0.0126 (0.0191)	-0.0116 (0.0397)	0.0375** (0.0153)
Squared age of head	-0.000118 (0.000171)	-0.000143 (0.000173)	-0.000127 (0.000172)	-0.000144 (0.000167)	4.20e-05 (0.000375)	-0.000347** (0.000151)
Female-headed household	-0.316** (0.145)	-0.312* (0.160)	-0.319* (0.162)	-0.301* (0.155)	0.677*** (0.183)	-0.0370 (0.159)
Head married	0.274* (0.143)	0.310* (0.181)	0.315* (0.182)	0.323* (0.179)	-0.207 (0.203)	0.186 (0.122)
Household is not Akan	-0.141 (0.106)	-0.177* (0.103)	-0.178* (0.102)	-0.180* (0.101)	0.161 (0.193)	-0.0733 (0.0903)
Household number	0.0732*** (0.0174)	0.0752*** (0.0173)	0.0691*** (0.0170)	0.0787*** (0.0173)	-0.106*** (0.0386)	-0.0177 (0.0115)
Big village (>5,000)	0.184** (0.0889)	0.175* (0.0888)	0.175** (0.0863)	0.176* (0.0897)	0.196 (0.214)	0.0210 (0.0906)

Small village(>1,000)	-0.201*	-0.203*	-0.209*	-0.191*	0.105	-0.0148
	(0.109)	(0.109)	(0.108)	(0.107)	(0.216)	(0.112)
Traditional area: Bosome	-0.136	-0.163	-0.150	-0.142	-0.178	0.0838
	(0.106)	(0.111)	(0.110)	(0.102)	(0.356)	(0.113)
Traditional area: Kotoku	-0.171**	-0.160**	-0.159**	-0.130	0.219	0.0130
	(0.0788)	(0.0767)	(0.0756)	(0.0800)	(0.189)	(0.0830)
Constant	5.811***	5.596***	6.050***	5.594***	4.550***	7.667***
	(0.461)	(0.511)	(0.518)	(0.486)	(1.202)	(0.527)
Observations	824	824	824	824	824	824
R-squared	0.176	0.192	0.201	0.190	0.218	0.132
Adjusted r-squared	0.164	0.176	0.185	0.174	0.198	0.107
Test of joint significance	F(12,46)=	F(16,46)=	F(16,46)=	F(16,46)=	F(20,46)=	F(23,46)=
	24.87***	26.18***	27.17***	29.10***	20.36***	15.63***
Highest vif (without age)	1.76	2.08	2.08	2.09	3.26	3.28
Ramsey's RESET test (p-val.)	0.607	0.888	0.508	0.967	0.984	0.241

Note: Clustered standard errors at village level; significance levels at: *** p<0.01, ** p<0.05, * p<0.1; for dummies: yes = 1, no = 0, where not stated differently values within a range from 0-1. Sample contains only household heads. Reference categories, where not self-explanatory: contractual treatment : independent farmer, occupation: farmer, ethnicity: Akan, village: small, traditional area: Abuakwa. Dummy for improved techniques = 1 if household uses cover crops, applies fertilizer at least once a year, and prunes at least twice a year. Subjective income is self-assessed on a scale of 0 to 5. Variance inflation factors above 10: age and age squared around 40.

Table 8
Estimations at plot level

VARIABLES	(1)	(2)
	All plots	Independent plots
	Profit per acre (log)	Profit per acre (log)
	OLS	OLS
Plot under outgrower contract	-0.272*** (0.0596)	
Outgrower dummy		-0.0778 (0.0895)
% of land with right to sell and use as collateral	0.423*** (0.102)	
% of land with right to use as collateral	0.0330 (0.0896)	
Own land in acres (log)	-0.00297 (0.00795)	
Cultivated land in acres (log)	-0.242*** (0.0492)	
Sharecropping factor 1/3 for landlord (plot level)	-0.131* (0.0791)	
Sharecropping factor 1/2 for landlord (plot level)	-0.658*** (0.142)	
Average plot size (in acres)	0.0190** (0.00904)	
Minutes to walk to plot	-0.000252 (0.000625)	
Age of trees (plot level)	0.0221*** (0.00543)	
Applying improved techniques	0.0942 (0.0690)	
Use of hired labor	0.299** (0.147)	
Use of household labor	-0.0537 (0.0578)	
1st occupation not in agric.	0.0606	

	(0.114)	
Head: absence > 6 months/yr	-0.0862	
	(0.116)	
Taken a loan within last year	0.0977	
	(0.0848)	
Member of a self-help group	0.137**	
	(0.0584)	
Years of schooling head	-0.0164***	-0.0117
	(0.00564)	(0.00732)
Age of head	0.0104	0.0133
	(0.0114)	(0.0154)
Squared age of head	-0.000140	-0.000156
	(0.000101)	(0.000138)
Female-headed household	-0.405***	-0.433***
	(0.102)	(0.135)
Head married	-0.0417	-0.143
	(0.0829)	(0.107)
Household is not Akan	-0.0989	-0.0833
	(0.0648)	(0.0809)
Household number	-0.0219*	-0.0199
	(0.0123)	(0.0145)
Big village (>5,000)	0.0772	0.125
	(0.0644)	(0.0894)
Small village(>1,000)	0.0200	0.0197
	(0.0724)	(0.0882)
Traditional area: Bosome	0.140	-0.136
	(0.120)	(0.174)
Traditional area: Kotoku	-0.0851	-0.178**
	(0.0588)	(0.0750)
Constant	7.120***	6.834***
	(0.346)	(0.423)
Observations	761	537
R-squared	0.220	0.044
Adjusted r-squared	0.191	0.020
Test of joint significance	F(28,463) = 14.8***	F(12, 273) = 2.22**
Highest vif (without age)	2.20	1.72
Ramsey's RESET test (p-val.)	0.73	0.32

Note: Clustered standard errors at village level; significance levels at: *** p<0.01, ** p<0.05, * p<0.1; for dummies: yes = 1, no = 0, where not stated differently values within a range from 0-1. Sample contains only household heads. Reference categories, where not self-explanatory: contractual treatment: independent farmer, occupation: farmer, ethnicity: Akan, village: small, traditional area: Abuakwa. Dummy for improved techniques = 1 if household uses cover crops, applies fertilizer at least once a year, and prunes at least twice a year. Subjective income is self-assessed on scale of 0 to 5. Variance inflation factors for age and age squared around 40.

Table 9
Estimations of likelihood of engaging in non-farm business at household level

Non-farm business VARIABLES	(1) Logit	(2) Logit
Outgrower dummy	0.0974*** (0.0330)	0.0925*** (0.0343)
% of land with right to sell and use as collateral		0.0179 (0.0723)
% of land with right to use as collateral		-0.157 (0.154)
Own land in acres (log)		0.00240 (0.00687)
Cultivation land in acres (log)		0.0229 (0.0318)

Applying improved techniques		-0.0302 (0.0348)
Use of hired labor		0.133** (0.0522)
Use of household labor		0.0289 (0.0413)
Head absence > six months per year		-0.0548 (0.0705)
Taken a loan within last year		-0.0175 (0.0449)
Membership in a self-help group		0.0104 (0.0384)
Years of schooling of head	0.00420 (0.00369)	0.00332 (0.00383)
Age of head	0.00161 (0.0103)	-0.00193 (0.0106)
Squared Age of head	-9.26e-05 (9.26e-05)	-6.53e-05 (9.50e-05)
Female-headed household	0.102 (0.0634)	0.0976 (0.0698)
Head is married	0.0114 (0.0552)	-0.00805 (0.0634)
Household is not Akan	-0.0191 (0.0400)	-0.0163 (0.0402)
Household number	0.0116 (0.00795)	0.0104 (0.00785)
Big village (>5,000)	0.110*** (0.0298)	0.106*** (0.0320)
Small village(>1,000)	-0.00301 (0.0408)	-0.0104 (0.0412)
Traditional area: Bosome	0.131** (0.0544)	0.141** (0.0576)
Traditional area: Kotoku	-0.0352 (0.0280)	-0.0382 (0.0286)
Observations	824	824
Wald's χ^2	$\chi^2(12) = 88.56***$	$\chi^2(22) = 197.09***$
Pseudo R-squared	0.054	0.065

Note: Clustered standard errors at village level; significance levels at: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; for dummies: yes = 1, no = 0, where not stated differently values within a range from 0-1. Sample contains only household heads. Reference categories, where not self-explanatory: contractual treatment: independent farmer, occupation: farmer, ethnicity: Akan, village: small, traditional area: Abuakwa. Dummy for improved techniques = 1 if household uses cover crops, applies fertilizer at least once a year, and prunes at least twice a year. Subjective income is self-assessed on scale of 0 to 5. Variance inflation factors for age and age squared around 40.

Appendix B: Robustness checks

Table 10

Alternative estimations of perceived future security of household heads

VARIABLES	(1) Ologit
Outgrower dummy	1.882*** (0.202)
% of land with right to sell and use as collateral	0.344 (0.239)
% of land with right to use as collateral	0.325 (0.254)
Socio-demographic and village characteristics	yes
Land-related and other controls	yes
Observations	824
Wald's χ^2	$\chi^2(20) = 388.06***$
Pseudo r-squared	0.055

Note: Clustered standard errors at village level; significance levels at: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Controls for land-related characteristics, labor characteristics, access to security mechanisms, and socio-demographic and village level characteristics upon request.

Table 11

Estimations of absolute plot profit

VARIABLES	(1) All plots Profit per plot (log) OLS	(2) Independent plots Profit per plot (log) OLS
Plot under outgrower contract	-0.355*** (0.0701)	
Outgrower dummy		-0.0317 (0.112)
Right to sell plot and use as collateral	0.454*** (0.156)	
Right to use plot as collateral	-0.00795 (0.103)	
Socio-demographic and village characteristics	yes	yes
Land-related and other controls	yes	no
Observations	762	539
R-squared	0.338	0.039
Adjusted r-squared	0.313	0.017
Test of joint significance	$F(28,460) = 20.51***$	$F(12,271) = 2.23**$
Highest variance inflation factor (without age)	2.20	1.8
Ramsey's RESET test (p-val.)	0.325	0.313

Note: Clustered standard errors at household level; significance levels at: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Controls for land-related characteristics, oil palm specifics, labor characteristics, access to security mechanisms, and socio-demographic and village level characteristics upon request. Variance inflation factors above 10: age and age squared around 40.

Table 12

Estimations at household level excluding extreme landowners (>30 acres)

	(1)	(2)	(3)	(4)	(5)	(6)
	Agg. assets (log) OLS	Agg. assets (log) OLS	Agg. assets (log) OLS	Agg. assets (log) OLS	Future security OLS	Agric. income (log) OLS
VARIABLES						
Outgrower dummy	0.406*** (0.105)	0.391*** (0.101)			2.264*** (0.219)	-0.416*** (0.101)
Size of contract land (log)			0.0507*** (0.0115)			
Years of holding contract				0.0205*** (0.00512)		
% of land with right to sell and use as collateral					0.419 (0.278)	0.704*** (0.169)
% of land with right to use as collateral					0.313 (0.318)	0.359* (0.191)
Socio-demographic and village characteristics	yes	yes	yes	yes	yes	yes
Other controls	no	yes	yes	yes	yes	yes
Observations	809	809	809	809	809	809
R-squared	0.168	0.187	0.195	0.187	0.217	0.125
Adjusted r-squared	0.156	0.170	0.179	0.170	0.198	0.100
Test of joint significance	F(12,45)= 20.33***	F(16,45)= 25.53***	F(16,45)= 26.29***	F(16,45)= 29.95***	F(20,45)= 16.51***	F(23,45)= 12.90***
Highest vif (without age)	1.79	2.13	2.13	2.14	3.25	3.27
Ramsey's RESET test (p-val.)	0.675	0.579	0.327	0.725	0.693	0.081*

Note: Clustered standard errors at village level; significance levels at: *** p<0.01, ** p<0.05, * p<0.1. Controls for labor characteristics, access to security mechanisms, and socio-demographic and village level characteristics upon request. Variance inflation factors above 10: age and age squared around 40.

Table 13

Estimations at plot level excluding extreme landowners (>30 acres)

	(1)	(2)
	All plots Profit per acre (log) OLS	Indep. plots Profit per acre (log) OLS
VARIABLES		
Plot under outgrower contract	-0.264*** (0.0623)	
Outgrower dummy		-0.0892 (0.0919)
Right to sell plot and use as collateral	0.418*** (0.103)	
Right to use plot as collateral	0.0322 (0.0904)	
Socio-demographic and village characteristics	yes	yes
Land-related and other controls	yes	no
Observations	743	524
R-squared	0.218	0.045
Adjusted r-squared	0.187	0.023
Test of joint significance	F(28,455)= 14.42***	F(12,267)= 2.22**
Highest variance inflation factor (without age)	2.23	1.7
Ramsey's RESET test (p-val.)	0.702	0.370

Note: Clustered standard errors at household level; significance levels at: *** p<0.01, ** p<0.05, * p<0.1. Controls for land-related characteristics, oil palm specifics, labor characteristics, access to security mechanisms, and socio-demographic and village level characteristics upon request. Vif > 10: age and age squared around 40.

Table 14

Estimations at household level split by landownership

	(1)	(2)	(3)	(4)	(5)	(6)
	Agg. assets (log)	Agg. assets (log)	Future security	Future security	Agricultural income (log)	Agricultural income (log)
	landowner	landless	landowner	landless	landowner	landless
VARIABLES	OLS	OLS	OLS	OLS	OLS	OLS
Outgrower dummy	0.417*** (0.142)	0.442*** (0.129)	2.249*** (0.285)	2.198*** (0.318)	-0.391** (0.149)	-0.470*** (0.129)
% of land with right to sell and use as collateral			0.562 (0.400)		0.964*** (0.253)	
% of land with right to use as collateral			0.527 (0.425)		0.615** (0.291)	
Socio-demographic and village characteristics	yes	yes	yes	yes	yes	yes
Other controls	yes	yes	yes	yes	yes	yes
Observations	479	345	479	345	479	345
R-squared	0.233	0.174	0.247	0.240	0.098	0.189
Adjusted r-squared	0.207	0.133	0.214	0.200	0.052	0.139
Test of joint significance	F(16,43)= 13.93***	F(16,42)= 12.88***	F(20,43)= 9.37***	F(17,42)= 11.59***	F(23,43)= 11.98***	F(20,42)= 37.02***
Highest vif (without age)	2.31	1.89	3.90	1.55	3.94	1.9
Ramsey's RESET test (p-val.)	0.57	0.837	0.156	0.892	0.314	0.044**

Note: Clustered standard errors at village level; significance levels at: *** p<0.01, ** p<0.05, * p<0.1. Controls for land-related characteristics, oil palm specifics, labor characteristics, security mechanisms, and socio-demographic and village level characteristics upon request. Variance inflation factors above 10: age and age squared around 40.

Table 15

Estimations of logged plot profit per acre split by landownership

	(1)	(2)
	All plots landowner	All plots landless
VARIABLES	OLS	OLS
Outgrower dummy	-0.319*** (0.0835)	-0.201** (0.0903)
Right to sell plot and use as collateral	0.368*** (0.118)	
Right to use plot as collateral	0.0184 (0.0958)	
Socio-demographic and village characteristics	yes	yes
Land-related and other controls	yes	yes
Observations	419	342
R-squared	0.245	0.236
Adjusted r-squared	0.191	0.175
Test of joint significance	F(28,262)= 11.18***	F(25,200)=6.50***
Highest vif (without age)	2.58	1.90
Ramsey's RESET test (p-val.)	0.93	0787

Note: Clustered standard errors at village level; significance levels at: *** p<0.01, ** p<0.05, * p<0.1. Controls for land-related characteristics, oil palm specifics, labor characteristics, access to security mechanisms, and socio-demographic and village level characteristics upon request, due to too little degrees of freedom only the effects for independently managed plots of landless households can be estimated. Variance inflation for age and age squared around 40.

LIFE SATISFACTION, CONTRACT FARMING AND PROPERTY RIGHTS:
EVIDENCE FROM GHANA

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Abstract

Recently, large-scale land acquisition has increased dramatically in the developing world. The question whether land deals can benefit both the local population and the investor is therefore high on the international agenda. Contract farming is discussed as a possible solution but studies identifying the causal effects are rare. Using data from a quasi-natural experiment in contract allocation, we compare the subjective well-being of outgrowers and independent farmers in the sphere of the biggest palm oil producer in Ghana. We identify a positive causal effect of the outgrower scheme which increases subjective well-being by 1.5 points on a scale of 0 to 10. We find a substitutive relationship between having an outgrower contract and having property rights, and thus we argue that by increasing security a contract increases well-being, as secure rights to land matter substantially for the overall life satisfaction of non-contract but not of contract farmers.

JEL Codes: D60, I31, Q13

Keywords: contract farming, property rights, quasi-natural experiment, subjective well-being, large-scale land acquisition

1. INTRODUCTION

Large-scale land acquisition, especially in Africa, is recently on the rise. Whether large-scale investment in agricultural land promotes growth and development by increasing productivity, providing infrastructure, improving technology, and creating work opportunities or whether it harms the local population by exploiting the workers, causing environmental destruction, and taking land away from local users is currently the subject of much debate in the literature (Cotula *et al.*, 2009; Görgen *et al.*, 2009; Von Braun and Meinzen-Dick, 2009; Deininger *et al.*, 2011; Cotula, 2012; Deininger and Byerlee, 2012). Some authors argue that where a country has a weak land governance system and at the same time a strong customary system, as Ghana does, large-scale investors can acquire land through traditional authorities at the cost of the local population (Schoneveld *et al.*, 2011; Wisborg, 2012; Amanor, 2012).

Outgrower schemes¹ could bring dual benefits in the sphere of large-scale investment in agricultural land. Contracts, if they respect existing local land rights, could foster the commercialization of farmers' produce while at the same time enabling the investor to profit from local land resources (von Braun and Meinzen-Dick, 2009; De Schutter, 2011). Because they are so prevalent in developing countries, especially in Africa, outgrower schemes deserve particular attention (Grosh, 1994; Oya, 2012). In general, "contract farming" refers to an agreement between a farmer and a firm which processes the farmer's produce or puts it on the market (Grosh, 1994). Institutional arrangements vary widely between different contracts. De Schutter (2011) describes the optimal scheme as one which has reliable producers for the investor, reliable buyers for the farmers and untouched secure land rights.²

Even though many studies identify positive effects of contract farming on the livelihood of farmers, outgrower schemes are still controversial. On the positive side, several authors, for example Porter and Phillips-Howard (1997), Warning and Key (2002), Bolwig *et al.*, (2009), Minten *et al.*, (2009), and Bellemare (2012), identify income and productivity gains of contract farming in Africa. Moreover, since contract farming can lead to risk-sharing between the producer and the processor (Key and Runsten, 1999), it can reduce price and income volatility (Minten *et al.*, 2009; Bolwig *et al.*, 2009), show positive spillover effects for non-contract crops and for adjacent non-contract farmers (Warning and Key, 2002; Govereh and Jayne, 2003; Minten *et al.*, 2009; Bellemare, 2012), and reduce market imperfections by

¹ We use the terms "contract farming" and "outgrower schemes" interchangeably.

² For political discussions on the benefits of contract farming for poverty alleviation see also World Bank (2007) and UNCTAD (2009).

providing credit, inputs, technology and information and hence lower transaction costs (Grosh, 1994; Key and Runsten, 1999; Deininger, 2011).

On the negative side, contract farming is interpreted as just a tool for the investor to extract rents without positive effects for landowners (Little and Watts, 1994; Porter and Phillips-Howard, 1997). Very unequal power relations can make producers more vulnerable, since risks may be transferred to them and they may lose autonomy (Little and Watts, 1994; Porter and Phillips-Howard, 1997; Key and Runsten, 1999). Moreover, the prevalence of contract farming is found to disrupt social structures, disturb the local political ecology, increase economic inequality, and increase workloads (Carney and Watts, 1990; Korovkin, 1992; Dolan, 2001; Yaro and Tsikata, 2013).

Despite these negative findings, however, farmers seem generally very willing to enter into contracts. Huddleston (2006) and V  th and Kirk (2014) have shown for our research setting that contract offers were not refused and, similarly, Guo and Jolly (2009) find a large excess demand for contract farming in China. Farmers' main motive for signing a contract seems to be to reduce uncertainty. Masakure and Henson (2005), for example, using principal component analysis, show that reduced market uncertainty (a guaranteed market for crops, a reliable supply of inputs, guaranteed minimum prices, and reliable transport provided to collect the produce) is what drives farmers to produce under contract.³ In Ghana, it has been found that farmers are eager to secure access to inputs, credit and extension services via an outgrower scheme (Huddleston, 2006; V  th and Kirk, 2014). Guo and Jolly (2009) identify market access and price stability as their main motives for entering into contracts. These findings are supported by Blandon *et al.* (2009), who identify prearranged quantities and prices as an incentive for farmers to sign contracts with supermarkets in Honduras. It therefore seems that the big advantage of contracts is that they satisfy security needs.

In rural areas, a land tenure regime which guarantees secure property rights to land is another way to satisfy these needs. By ensuring that future profits from investing in land return to the landowner, these rights reduce uncertainty and help to overcome the inevitable time lag between agricultural investment and output, and hence stimulate investment (Besley, 1995; Brasselle *et al.*, 2002; Carter and Olinto, 2003). Moreover, income gains (Bouis and Haddad, 1990; Grootaert *et al.*, 1997; Carter and May, 1999; Scott, 2000; Gunning *et al.*, 2000) and

³ Farmers in Schipmann and Qaim's (2001) study in Thailand, on the other hand, did not show a preference for contract farming. Farmers were, however, more likely to choose a contract when input or credit provision was involved.

better social standing (Binswanger *et al.*, 1995) for the holder of these rights ease the access to credit (Feder, 1988)⁴ and open up social networks (Townsend, 1994), which in turn help to smooth consumption patterns and improve food security (Deininger, 2003; Dekker, 2006).

To jointly capture all effects of contract farming and its relation to secure property rights to land we used a subjective well-being approach, which we understand as a measure of utility (Frey and Stutzer, 2002). Since it comprises both monetary and non-monetary aspects, subjective well-being is a good complement to more traditional approaches, which concentrate mainly on monetary issues (Diener and Suh, 1997; Frey and Stutzer, 2002) and dominate the literature on contract farming. Thus, by controlling for income effects, a subjective well-being approach allows us to focus on risk-reducing mechanisms and security-related aspects, which form a key dimension of subjective well-being (Oishi *et al.*, 1999; Webb, 2009; Wills-Herrera *et al.*, 2011). In doing so, we go far beyond the direct monetary effects of contract farming.

Whereas some authors find high correlation between subjective well-being and objective measures (Oswald and Wu, 2010), others argue that adaptation to circumstances and stable dispositional characteristics lead to rather low correlations (Diener and Suh, 1997). Identification of causal effects has therefore attracted considerable attention in the subjective well-being literature (see Ferrer-i-Carbonell and Frijters, 2004, for a good overview on estimation techniques).

We contribute to this literature by identifying the causal effect of contract farming on subjective well-being in the sphere of a large-scale land acquisition. Unobserved differences between contract and non-contract farmers, which are correlated with the outcome variable (e.g. entrepreneurial spirit and ability, risk preferences, trust, or effort), make appropriate estimation techniques necessary to avoid biased estimates. Several studies have used an instrumental variable approach to correct for selection bias (e.g. Warning and Key, 2002; Simmons *et al.*, 2005; Miyata, 2009; Rao and Qaim, 2011; Bellemare, 2012). However, Dedehouanou *et al.* (2013) claim that instruments are often weak. Using panel data on contract farmers in Senegal, they find that having a contract had a positive influence on subjective well-being.

Our study confirms the positive link between contract farming and subjective well-being for oil palm farmers in Ghana. We take advantage of a research setting where contract allocation

⁴ Some authors do not find improved access to the credit market from providing secure land titles (see for example Place and Migot-Adholla, 1998; Carter and Olinto, 2003).

took place as a quasi-natural experiment. Whereas using panel data can bias results because of omitted time-variant variables,⁵ natural experiments provide the most robust evidence of causality (MacKerron, 2012). In addition, we broaden the view by using two measures of contract farming, firstly a dummy variable indicating that a household has an outgrower contract on at least one of its agricultural plots, and secondly by using the size of land under outgrower contract. Both variables remain positively significant throughout different model specifications. However, it seems that holding an outgrower contract, independently of the size of land under contract, explains gains in subjective well-being better. Moreover, we propose that contract farming contributes to subjective well-being by fulfilling security needs, as property rights for land play an important role for non-contract holders but not for contract holders. Hence, contract farming turns out to be a promising tool for overcoming lacks of security.

The remainder of the paper is structured as follows. In the next section, we discuss the connection between contract farming and subjective well-being, and between secure property rights to land and subjective well-being, and the way these two kinds of connection are interlinked, with a special emphasis on security aspects. Section 3 describes our research setting, including contract allocation as a quasi-natural experiment, Section 4 presents our estimation strategy with a discussion of previous findings in the subjective well-being literature, the data and descriptive statistics, as well as our empirical findings, and Section 5 concludes.

2. LIFE SATISFACTION AND THE SECURITY DIMENSION OF CONTRACT FARMING AND PROPERTY RIGHTS

Overall life satisfaction can be understood as an aggregate concept which comprises various domains (Meadow *et al.*, 1992; Cummins, 1996; Van Praag *et al.*, 2003; Rojas, 2007; Van Praag and Ferrer-i-Carbonell, 2008). The identification and demarcation of different domains is somewhat arbitrary (Rojas, 2008; Bardo and Yamashita, 2013), but over the last decade the International Wellbeing Group (2013) has developed a standard “personal well-being index” (PWI) which is widely used in developing and emerging countries (e.g. Tiliouine *et al.*, 2006; Webb, 2009; Wills-Herrera *et al.*, 2011; Davey and Rato, 2012). The index identifies future

⁵ For example income movements and changes in well-being are linked through omitted variables such as “seniority in the workplace” (Gardner and Oswald, 2007).

security as an important feature of overall life satisfaction.⁶ Especially in developing countries, where (rural) markets show high imperfections, formal safety nets are underdeveloped, and stability needs are inadequately satisfied, security plays an important role in overall life satisfaction (Oishi *et al.*, 1999). Webb (2009) shows for Tibet that future security is even slightly more important for overall life satisfaction than the standard of living domain. Willis-Herrera *et al.* (2011) show from a different angle that perceptions of political, economic and communitarian insecurity, in turn have a negatively significant correlation with subjective well-being in Columbia.

In the sphere of large-scale land acquisitions, contract farming is seen as one important way to address security needs, as it reduces some of the risks a farmer has to face. Dedehouanou *et al.* (2013) point out that marketing risk is reduced because there is a secure buyer for the produce and improved access to the market, and production risk is reduced because inputs and credit are provided by the contractor. However, they also mention that it brings one new risk: a contract may be breached, either by the buyer, because of decreased demand for processing or by the farmer, because of failure to meet high quality standards.

Apart from the security aspects, Dedehouanou *et al.* (2013) indicate that contract farmers may earn higher income, have more self-esteem, be more efficient because they receive training, and have better health conditions due to access to less harmful pesticides and other chemicals – all benefits which increase subjective well-being. On the other hand, contract farmers lose their autonomy and may have to adapt their production and management techniques to meet specified quality standards (especially for export production), which can mean increased pressure and higher labour requirements and consequently decreased subjective well-being. In a setting with very unequal power relations, farmers are endangered to enter into adhesion contracts which foster such negative effects. Therefore, Dedehouanou *et al.* (2013) argue that contract farming can affect overall life satisfaction both positively and negatively. As in our particular setting the risk of contract breach by the buyer is rather negligible due to the excess demand for oil palm fruits, and as the contractual agreement does not specify particular quality standards, we expect that positive effects will outweigh the negative ones. Thus, we hypothesize that holding an outgrower contract has a positive influence on farmers' subjective well-being. In line with Masakure and Henson (2005), Guo and Jolly (2009), and Blandon, Henson and Islam (2009), who highlight the reduction of uncertainty as the main motive for

⁶ Based on Cummins (1996), the PWI lists eight domains of life: standard of living, personal health, life achievement, personal relationships, personal safety, community connectedness, future security, and spirituality/religion.

entering into contracts, we believe that security is the aspect most responsible for enhanced overall life satisfaction, when controlling for income effects.

Secure property rights to land are a second important way to address the security needs of rural households and thus increase their subjective well-being. In the absence of these rights, land conflicts arise when an increasing demand for land meets a limited supply. This is especially the case when a large-scale investor enters the scene and demands huge tracts of land. Thus, numerous studies document land disputes around large-scale investments, mostly to the disadvantage of the local population (Li, 2011; Borras Jr and Franco, 2012; German, 2013). Clearly defined property rights can foster social stability and prevent disputes (Palmer 1998) and are therefore a precondition for satisfying the needs of both the local population and the investor.

Moreover, land with secure property rights can be used as collateral to access the credit market (see for example the seminal work by Feder, 1988, in Thailand, which identifies the credit supply effect as the main benefit from land titling). In particular, it allows the farmer to enter the formal lending market, where imperfect information about the borrower and high monitoring costs are even more of an obstacle than in the informal sector (Feder and Nishio, 1998). If households are credit constrained, any increase in investment may be accompanied by decreased consumption in the short run. Access to credit in turn reduces food insecurity, mitigates health shocks and decreases vulnerability to environmental disasters. Thus, in line with Deininger (2003), we can say that secure property rights to land provide an important safety net function which is expected to enhance subjective well-being.

In addition, secure ownership reduces the time spent on protecting property and allows household members to spend it on other activities (Field, 2007). This may lead to greater labour market participation, thus increasing non-agricultural income, which may lead to an increase in subjective well-being beyond addressing security needs. Finally, secure property rights guarantee the long-term use of the land and thereby increase investment incentives, which may bring additional income and improve agricultural productivity (e.g. Deininger and Chamorro, 2004; Deininger and Jin, 2006; Goldstein and Udry, 200; Fenske, 2011). Higher income in turn is positively associated with subjective well-being.⁷ Consequently, we hypothesize that holding secure property rights to land has a positive influence on farmers'

⁷ Compare Besley (1995) for a discussion on endogeneity issues, for example that investment may not be a response to higher levels of tenure security but rather undertaken to enhance tenure security.

subjective well-being. Again, we assume that this is mainly caused by gains in security when controlling for income effects.

Considering that both holding an outgrower contract and possessing secure property rights are expected to have a positive influence on the security domain and in turn overall life satisfaction, it is worthwhile conceptualizing possible links. Whereas several researchers assume an additive relationship between domain satisfaction and overall life satisfaction (e.g. Møller and Saris, 2001; Van Praag and Ferrer-i-Carbonell, 2008), Rojas (2006) provides theoretical and empirical evidence that a constant elasticity of substitution (CES) specification is preferable. Thus, allowing a variety of imaginable relationships between domain satisfaction and overall life satisfaction, he shows for Mexico that effects on overall life satisfaction emanating from increasing satisfaction in one domain tend to decay with increasing satisfaction in this domain. This is in line with Palmer's diminishing marginal returns argument (1998), which states that once a certain level of security has been reached, the benefits of additional security will be too small to foster further efforts to realize extra security. In the context of overall life satisfaction, we therefore assume a substitutive rather than an additive relationship between contract farming and secure property rights to land.

3. RESEARCH SETTING

3.1. *The Investor*

Our research was conducted within a 30 km radius of the Ghana Oil Palm Development Company (GOPDC) large-scale investment. GOPDC is the biggest palm oil producer in Ghana. It was founded in 1976 as a state-owned company with 8,953 ha of land, expropriated from the local population by the military government (Republic of Ghana, 1976; Sutton and Kpentey, 2012). The land known as the Kwae Concession was gradually transformed into oil palm plantations to feed the newly constructed large-scale mill. The investment is located in the remote Kwaebibirem District in the Eastern Region, where the oil palm business was introduced to facilitate local development (Huddleston, 2006; Huddleston and Tonts, 2007; Fold, 2008; Fold and Whitfield, 2012; Adjei-Nsiah *et al.*, 2012).

From 1986 onwards, an outgrower scheme was established through a World Bank supported development programme which aimed to integrate the local population. At that time the mill was not being used to anywhere near full capacity, because the expansion pace and yield of

the nucleus farm had been overestimated (World Bank, 1994; interviews with Lands Commission senior official and GOPDC senior manager),⁸ so GOPDC was interested in increasing the local supply.

In the course of the privatization wave in 1994, the government transferred GOPDC to the Belgium investor Société d'Investissement pour l'Agriculture Tropicale (SIAT), which took over the majority of shares (GOPDC, 2013; SIAT, 2013). In addition to the 50-years leasehold for the Kwae Concession (as of 1976), GOPDC acquired 5,205 ha for the adjacent Okumaning Concession (as of 2000) (Republic of Ghana, 2008; Sutton and Kpentey, 2012). However, neither the concessions nor the outgrower scheme yielded enough oil palm fruit to run the mill at full capacity (interview with GOPDC senior manager),⁹ so GOPDC complements its nucleus-estate system with third party purchases from independent farmers.

Focus group discussions revealed that the local people have very mixed feelings about GOPDC (Gyasi, 1994; Huddleston, 2006; Vāth, 2013). On the one hand they complain about the original expropriations by the military government in the 1970s, low wages, and problems with daily operations, but on the other they are very grateful for the expansion of the oil palm business in the area, the outgrower scheme, infrastructural developments, employment creation, and corporate social responsibility (Huddleston, 2006; Huddleston and Tonts, 2007; Vāth, 2013). Thus it cannot yet be claimed that there is a stable relationship between the investor and the local population.

3.2. Oil Palm Production Around the Large-Scale Investment

Besides a few large-scale producers, oil palm is typically grown by small- and medium-scale farmers in Ghana. Investment costs for oil palm cultivation are high, and it is only a rational choice for those who hold secure land use rights (property rights or long-term sharecropping agreements), as the break-even point is not reached until the seventh year after planting (Poku and Asante, 2008). Consequently, the poorest are excluded from any form of commercial oil palm farming and we can conclude that all those farmers who cultivate oil palm hold secure land use rights.

⁸ Semi-structured expert interviews were conducted in the Kwaebibirem District or Accra between October and November 2011 to enrich the quantitative database. To guarantee the anonymity of the interviewees, we reveal their (rough) position and organization but not their names. All interviewees were informed about the purpose of the study. Due to their reservation and the sensitiveness of the topic, interviews were not recorded.

⁹ For more details on GOPDC, please refer to Vāth (2013).

There are two ways that the roughly 10,000 smallholder farmers in our research area can cultivate oil palms: either independently or under contract. Roughly 3,000 households grow them as fully independent farmers. They can choose whether to sell their produce to the local market or to GOPDC (interview with Ministry of Food and Agriculture official). In contrast, at the time of data collection, 7,279 outgrowers were obliged to deliver the fruit from a contracted oil palm plot to GOPDC. Households typically cultivate more than one plot; hence a farmer can be an outgrower on one plot and also grow oil palm or other crops as an independent farmer on another non-contracted plot. In our sample more than 90% of households holding an outgrower contract on one plot are at the same time growing oil palm independently on other plots.

GOPDC and the local economy compete in their demand for oil palm fruit (Poku and Asante, 2008). GOPDC's pricing, for both outgrowers and independent farmers, is based on developments in the world market price for crude palm oil (GOPDC, n.d.; interviews with GOPDC senior manager and outgrower association executives; focus group discussion with farmers). GOPDC offers higher prices than the local market in the domestic peak season as the Ghanaian supply is too small to have an impact on the world market. In contrast, the local market pays more in the lean season when oil palm fruit is scarce and domestic demand is high. In a weak institutional setting paired with high monitoring costs, outgrowers could breach contracts and sell to local markets (Fold, 2008; Fold and Whitfield, 2012) without fear of legal consequences.¹⁰ The competitive demand setting is therefore more advantageous for oil palm farmers than a situation where monopolistic structures weaken the smallholders' bargaining power. Output markets for GOPDC and small-scale processors are discrete. Whereas the red cooking oil for local demand can technically be produced only by the small mills, GOPDC produces the crude palm oil used by various industries (Osei-Amponsah *et al.*, 2012).

3.3. Contractual Treatment as Quasi-Natural Experiment

When it introduced the outgrower scheme, GOPDC did not follow a systematic strategy for location and scope. Uneven performance and changing attitudes of different managements created the framework for various expansion waves and their particular locations over the years (interviews with GOPDC senior managers and outgrower association executives). To

¹⁰ To prevent side-selling, GOPDC improves its relations with the local population by enhancing its corporate social responsibility activities or increasing its prices. Since legal processes are expensive and slow in Ghana, legal action against breach of contract is not a workable solution to the problem (interviews with GOPDC senior managers).

minimize the transaction costs of extension activities and fruit collection, each phase of expansion was bound to a strictly demarcated area with a one-shot offer to accept the contract (interviews with GOPDC senior managers). Thus farmers were unable to predict the pace, scope or sites of these expansions. Consequently, self-selection by strategic migration was impossible in our research setting.

When GOPDC decided at a specific date to expand the scheme at a specific location, it offered at short notice a 25-years contract for a specific plot to all farmers who were currently holding a “ready-to-cultivate plot” with ownership rights (interviews with GOPDC senior manager and outgrower association executives).¹¹ Recognizing the domestic role of sharecropping, at the same time GOPDC introduced a tripartite outgrower contract for sharecroppers with 25-years land use rights.¹² Apart from the fact that the landlord has to sign the outgrower agreement, such tripartite contracts are indistinguishable from contracts with farmers holding property rights to land (GOPDC, n.d.). Outgrowers receive extension services, inputs and credit from the investor (GOPDC, n.d.). Corroborating the findings by Huddleston (2006) and Fold (2008) that farmers were eager to enter into contracts to access credit and technology our interviews with the executives of the outgrower association and focus group discussions with farmers revealed that to the best of their knowledge nobody had ever rejected an offer.¹³

To prove ownership rights in rural Ghana is challenging as land administration is cumbersome (Amanor, 1999). At the time of data collection, titles verifying property rights to land were not available in the catchment area and deed registration was poor (interview with Lands Commission senior official). But the predominantly customary land tenure system of the Akyem proved to be dynamic as it invented a kind of “informal deed” (Gyasi, 1994; Amanor, 1999). Clan heads and chiefs began to document customary ownership rights for a small fee and enabled land-owning farmers to participate in the scheme (interview with outgrower

¹¹ A ready-to-cultivate plot is a cleared plot which is not cultivated with other food or cash crops, but ready to be newly planted. In our research area farmers typically cultivate various plots with food (maize, plantain, cocoyam, cassava, etc.) and cash crops (cacao, citrus, and oil palm) which can be partly intercropped (interview with Ministry of Food and Agriculture official). Given the different crop cycles over multiple farms as well as fallow periods, rural households commonly have ready-to-cultivate plots.

¹² From the late 19th century, long-term sharecropping arrangements became more common than customary ownership rights in Akyem (Gyasi, 1994; Amanor, 1999; Amanor and Diderutuah, 2001). This was the result of increasing land pressure through population growth and the migration associated to the cocoa boom (Gyasi, 1994). Thus, as a flexible instrument to enhance the allocation efficiency of land and labour resources, sharecropping spread (Amanor and Diderutuah, 2001; Amanor, 2010).

¹³ To enrich the quantitative data, focus group discussions were conducted between September and November 2011 with independent farmers and outgrowers. Each group consisted of 7 to 15 participants of similar wealth level. They were held in the local languages Twi and Fante, and recorded and transcribed into English.

association executives; Amanor and Diderutuah, 2001). But even though the outgrower scheme was established as a World Bank supported development project and contract farmers received inputs and credit to cope with high investment costs, the poorest farmers are still excluded from the oil palm business as they cannot provide the required land use rights (see also Watts, 1994).

De facto, as many eligible farmers as possible were recruited for the project (Huddleston 2006; interview with GOPDC senior manager) since the investor strove to make full use of the mill and the World Bank aimed to integrate the local population. Given the high cost and the intention of expanding the scheme quickly, agronomic characteristics such as soil fertility or rainfall patterns were not measured on the plots under consideration (interviews with GOPDC senior managers). GOPDC's staff only verified that plots were on low-lying land. This assessment was rather pro-forma, as it is common knowledge in rural Ghana that low land is more suitable than high land for oil palm cultivation (Gyasi, 1994; Amanor and Diderutuah, 2001) and farmers do not cultivate oil palm on unsuitable land but rather enter into sharecropping arrangements to balance their needs for low and high lands (Amanor and Diderutuah, 2001). Moreover, to the best of our knowledge, GOPDC assessed neither personal attitudes nor socio-economic characteristics.

De jure, additional criteria were introduced in the contract. Firstly, outgrower plots had to be within 400 metres of an accessible road (GOPDC, n.d.). Recognizing that the road system in the area was underdeveloped, either all farms had to be accessible or none, hence this requirement was de facto not applicable (interviews with GOPDC senior managers and outgrower association executives). Secondly, the outgrower contract called for participants aged 18 to 45, but Huddleston's data set (2006) shows that this criterion was not implemented (which is also in line with statements made in interviews with GOPDC senior managers and outgrower association executives).

To sum up: For oil palm farmers, both outgrowers and independent, secure land use rights (i.e. property rights or long-term sharecropping arrangements) are indispensable and therefore different performance cannot be the result of unequal access to documented land use rights. Moreover, neither our treatment nor our control group (i.e. outgrower or independent farmers) includes the poorest farmers, since high investment costs and difficult access to long-term land use rights prevents them from cultivating oil palms commercially. Most importantly, it was impossible to anticipate the location and scope of the scheme or the date when it would be introduced, and no farmers rejected the scheme. Within the chosen area, both GOPDC and

the World Bank wanted to offer the contract to as many farmers as possible and de facto no pre-selection of participating farmers took place. Hence, we treat the outgrower contracts as a quasi-natural experiment.

4. EMPIRICAL ANALYSIS

4.1. *The Empirical Model, Variables, and Estimation Strategy*

We estimate the effect of the contractual treatment on subjective well-being using the following general model:

$$y_i = \alpha_0 + \beta'x_i + \gamma'l_i + \delta'c_i + \varepsilon_i$$

y_i stands for the dependent variable, x_i is a vector of explanatory variables, including socio-demographic variables of the respondents, l_i represents land related variables, most importantly our measure of contract farming and property rights for land, c_i includes geographic information for the village and area, and ε_i refers to the error term. β' , γ' and δ' are parameter vectors relating to the corresponding individual variables, land related variables and geographic information respectively.

Our indicator for subjective well-being is overall life satisfaction, which runs from 0, representing very low subjective well-being, to 10, representing very high subjective well-being. We use ordinary least square estimations throughout our paper, following Ferrer-i-Carbonell and Frijters (2004), who have shown that ordinal and cardinal treatment of the dependent variables leads to similar results. Ordered logistic regressions are estimated as a robustness check and can be found in Appendix B.

Our aim is to identify the causal effect of contract farming on subjective well-being in the context of a large-scale land investment. We use two alternative measures for contract farming. First, we include a dummy variable which takes on a value of one if a household has an outgrower contract on any of its agricultural plots. Second, we replace the dummy by the logarithm of land size under outgrower contract. The majority of households in our sample cultivate several plots. Therefore, outgrowers may have some plots under contract and others used independently. Using the dummy variable, we assume that contract farming has a uniform effect on households independently of the size of land under contract. With our

second measure we relax this assumption by testing size effects assuming that a percentage increase in the size of land under contract has a constant effect.

As having a contract may influence not only subjective well-being but also other household characteristics such as income or aggregated assets, we start by estimating the net effect of contract farming on subjective well-being by including only our measures for participation in the outgrower scheme and exogenous socio-demographic characteristics (model 1 in Table 4 includes the dummy variable and model 2 in Table 4 the logarithm of land size under outgrower contract).

In a second step, we include further land related controls in model 3 in Table 4, most importantly the percentages of land with secure property rights, as well as additional socio-demographic and wealth-related controls. We distinguish between two bundles of property rights, to take into account the fact that customary land rights can vary in quality with regard to disposal and mortgage. The first bundle comprises both the right to use the land as collateral and the right to sell the land, whereas the second contains only the right to use the land as collateral. Recalling that households typically cultivate more than one plot, we include land with secure bundles of property rights as the percentages of the total amount of land owned (running from 0 to 1). These are proxies for landownership at the household level which allow us to capture different property rights regimes of different plots.

In model 4 we also include an interaction term between the bundles of property rights and the outgrower dummy to identify heterogeneous effects for the treatment and the control group. Even though we cannot know if the bundles of property rights to land are exogenous, the interaction might give us a hint about the transmission channels of contract farming. In all estimations we cluster the standard errors on the village level.

The socio-demographic control variables included in models 1 and 2 in Table 4 are age of the head of household and its square, gender of the household head, a dummy variable indicating whether the household does not belong to the regional ethnic majority (Akan), and a dummy for households which migrated to the region before the start of the outgrower scheme. Many studies find a u-shaped relationship between age and subjective well-being (e.g. Blanchflower and Oswald, 2008), indicating lower levels of subjective well-being around middle age. Studies on gender and subjective well-being find either no significant gender effects (Van Landeghem *et al.*, 2013) or higher average subjective well-being for females (Dolan *et al.*, 2008; MacKerron, 2012). Belonging to an ethnic minority or being a migrant show more

consistent results in the literature, with lower subjective well-being reported for these groups (Verkuyten, 2008; Safi, 2010; Kirmanoğlu and Başlevent, 2013). Whereas some scholars argue that the extent of assimilation to the host environment provides some explanation (Neto, 1995), others find that it is driven rather by perceived discrimination (Verkuyten, 2008; Safi, 2010).

Models 3 and 4 in Table 4 add additional controls. These include a dummy for marital status of the respondent, because married people are believed to be more satisfied with life (Stack and Eshleman, 1998; Diener *et al.*, 2000),¹⁴ years of education, which are often found to be correlated to subjective well-being, with results differing in terms of strength and direction (Dolan *et al.*, 2008), and a health variable (illness within the household during the previous two weeks), because healthier people show higher subjective well-being (Dolan *et al.*, 2008).¹⁵

Income as a determinant of subjective well-being is the focus of a sizable number of research papers. In general, they find a positive but diminishing correlation of income and subjective well-being. However, reverse causality and further endogeneity problems, caused for example by latent personality traits or uncontrolled health effects, make direct interpretation often problematic. This is shown for example by Graham *et al.* (2004), using panel data from Russia, who find that more satisfied people tend to have higher incomes. Therefore, some studies instrument income with expenditure data (e.g. Kingdon and Knight, 2007; Asadullah and Chaudhury, 2012; Van Landeghem *et al.*, 2013). We decided to use data on household's self-rated surplus income, which we consider more relevant in the context of subjective measures.¹⁶ This has the advantage of controlling at least partly for possible measurement errors if we assume that measurement errors are correlated with each other over different subjective measures. People's understanding of what the levels on a scale mean can vary considerably (Winkelmann and Winkelmann, 1998; Van Landeghem *et al.*, 2013). For example, a choice of 3 on a scale of 1 to 5 could indicate either a fairly high or a fairly low level of well-being, depending on personal judgment. Moreover, people can show the same

¹⁴ Including marital status as a right-hand side variable raises issues of reverse causality. See for example Frey and Stutzer (2005) for a discussion.

¹⁵ Oswald and Powdthavee (2008), in their longitudinal study, find partial hedonic adaptation to becoming disabled. In line with this argument, Diener *et al.* (1999) argue for the use of subjective health measures. However, our results hold, as we include subjective health as an additional explanatory variable.

¹⁶ Question: Which of the following is true? The current income of the household: 1= Allows you to build your savings, 2= Allows you to save just a little, 3= Only just meets your expenses, 4= Is not sufficient, so you need to use your savings to meet expenses, 5= Is really not sufficient, so you need to borrow to meet your expenses. In addition we control for household size. We assume that sharecropping is captured by our control for household income. Nonetheless, our results hold as we include a sharecropping dummy.

average well-being levels despite different variance in well-being over time (Ravallion and Lokshin, 2001).

We also use this proxy to construct a relative income variable. People tend to compare themselves with their peer group, with two opposing effects at work (see Van Landeghem *et al.*, 2013, for the subsequent discussion). On the one hand, higher income of one's peers can be seen as a positive sign for overall development, hinting at future improvement of one's own situation, or it can lead to positive externalities, again improving one's own situation; on the other hand, having a higher income than one's peers may lead to higher status, incorporating material and social benefits and a better chance of survival in times of crisis. Empirical research mostly finds the latter effect more pronounced, with negative correlation between average peer's income and subjective well-being (e.g. Dedehouanou *et al.*, 2013, for Senegal; Addai *et al.*, 2013 for Ghana). We construct our measure of relative income of household *i* as the average self-rated surplus income of all households living in the same traditional area, excluding household *i* itself. Our data set includes households from three traditional areas, Abuakwa, Kotoku, and Bosome. Anecdotal evidence supports our assumption that people identify with their traditional group; however, results hold if we use the village as the group identifier. In addition, we include an asset index as a stock variable for household's wealth. This variable can of course also be subject to endogeneity, further, it might be correlated to household's income. However, results hold for alternate use as well as for including both variables and the variance inflation factor does not point to serious multicollinearity.

Land related controls are the size of own and neighbours' average agricultural land, the size of the land under cultivation, and the duration of the outgrower contract. Again multicollinearity is not a problem and results hold for alternative specifications. The effect of landownership and secure access to land is seriously under-researched in the subjective well-being literature even though land plays a key role in agrarian societies. In a study of a land reform in Moldova, Van Landeghem *et al.*, (2013) find that own landholdings have a positive effect on subjective well-being but that neighbours' average landholdings have a negative effect. Gobien (2014) has corroborated these findings in the context of a land distribution project in Cambodia.

4.2. Data and Descriptive Analysis

Our survey was conducted between October and December 2010 within a 30 km radius of GOPDC's oil palm mill. In total 824 household heads were interviewed – 436 outgrowers and 388 independent farmers. GOPDC permitted us to draw a random sample out of a total outgrower population of 7,279. Choosing the 95% confidence level with a confidence interval of 5, we ended up with 436 outgrowers spread over 47 different villages in the catchment area (see Table 1).

In addition, we interviewed 388 independent farmers out of an estimated population of 3,000 households in a two-stage selection process (see Table 1). In a first step, we selected 25 villages out of these 47 villages by using village size (small, medium, large) as the stratum for proportional sampling. In the small villages (< 1,000 inhabitants) we sampled all the independent oil palm farmers, but we applied a second-stage cluster sampling for medium (>1,000–5,000 inhabitants) and large (>5,000 inhabitants) villages. To avoid biases through migration effects, we excluded from our survey migrant households which had been in the catchment area less than 24 years since the introduction of the outgrower scheme.

Table 1. Populations and sampling

Contractual arrangement	Population size	Sample size
Outgrowers (OG)	7,279	436
Independent Farmers (IF)	unknown \approx 3,000	388
Observations	\approx 10,279	824

Note: OG are based on random sampling. IF are based on a two-stage sampling with community size as stratum and clustering at village level.

Tables 2 and 3 and Figure 1 offer some descriptive statistics for our sample. Table 2 shows that mean life satisfaction for outgrowers (6.853) is significantly higher than for independent farmers (5.345).

Table 2. Descriptive statistics of outcome variable

Outcome variable	Observations	Means (sd)		Diff. in means
		Outgrowers	Independent farmers	
Overall life satisfaction	824	6.853 (1.651)	5.345(1.702)	***

Note: Significance levels at: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, difference in means according to Wilcoxon rank sum test.

A more detailed look at the histogram in Figure 1 shows that the modus for independent farmers is at a satisfaction level of 4, reported by roughly 30%, whereas for the outgrowers it is at a level of 8, reported by roughly 27%. Hence, descriptive analysis provides some initial evidence that life satisfaction is higher for contract than independent farmers.

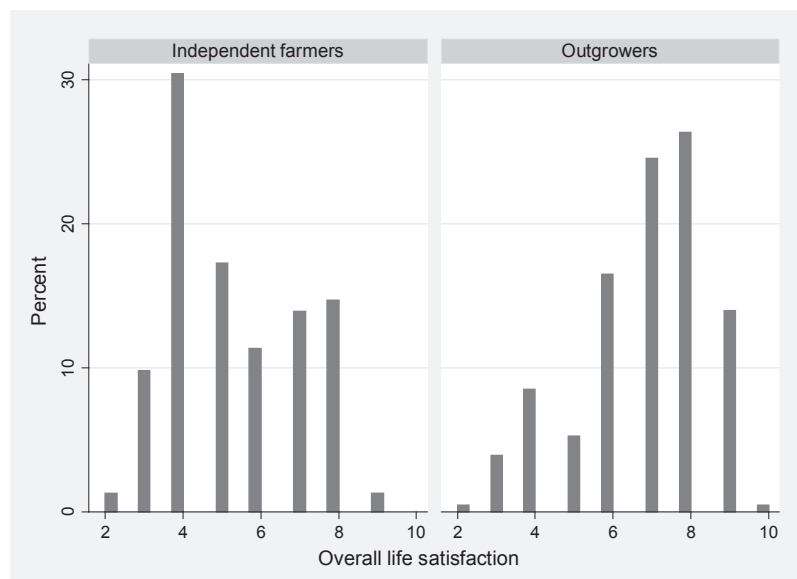


Figure 1. Histogram of overall life satisfaction (0–10) for independent farmers and outgrowers

In line with this finding, V  th (2013) concludes that focus group discussions with contract farmers in our research area reveal that GOPDC’s outgrower scheme is perceived quite positively, especially with regard to security-related aspects. Benefits mentioned were reduced market uncertainties, infrastructural improvements, training in agricultural techniques and technologies promoted by GOPDC, such as plant spacing, fertilizer application and the use of chainsaws. Topping the list of things these farmers appreciated were improved market participation through the introduction of commercial oil palm farming in the area, and access to inputs, credits and training, which allowed them to set up businesses and earn cash. These

benefits enabled them to enrol their children in school, and enabled some to save enough money to send their children to university.

Table 3. Descriptive statistics of independent variables (means)

CATEGORIES	VARIABLES	Means (sd)				Diff. in Means
		Outgrowers (436)		Independent farmers (388)		
Land-related characteristics	Land under contract (in acres)	9.914	(7.625)	-		
	Own land (in acres)	6.202	(12.81)	4.821	(5.519)	**
	Land under cultivation (in acre)	17.27	(10.47)	9.410	(5.794)	***
	% of land with rights to sell and use as collateral (0–1)	0.251	(0.364)	0.453	(0.460)	***
	% of land with rights to use as collateral	0.0520	(0.186)	0.0880	(0.245)	*
Socio-demographic characteristics	Education of household head (years)	8.25	(5.120)	6.938	(4.602)	***
characteristics	Gender of household head (1=female)	0.222	(0.416)	0.186	(0.389)	
	Age of household head	52.110	(11.243)	47.007	(12.56)	***
	Not Akan (different ethnicity)	0.374	(0.484)	0.353	(0.478)	
	Migrant	0.314	(0.465)	0.139	(0.347)	***
	Household head is married	0.827	(0.380)	0.814	(0.389)	
	Household member ill (last 2 w.)	0.408	(0.492)	0.183	(0.387)	***
	Household size	6.041	(2.844)	4.054	(2.09)	***
Wealth characteristics	Subjective income	3.278	(1.218)	3.317	(0.994)	
	HH aggregated assets (in GH Cedi) ⁺	1,126	(24,274)	732	(3,673)	***
Village level characteristics	Large village (>5,000)	0.255	(0.436)	0.232	(0.423)	
	Small village(>1,000)	0.294	(0.456)	0.289	(0.454)	
	Traditional area: Bosome	0.0229	(0.150)	0.0387	(0.193)	
	Traditional area: Kotoku	0.463	(0.499)	0.407	(0.492)	

Note: Significance levels at: *** p<0.01, ** p<0.05, * p<0.1; for dummies: yes = 1, no = 0; subjective income: 1= very high, 5= very low; two sample tests of proportions for dummies, otherwise Wilcoxon rank-sum tests are applied. ⁺As assets are strongly skewed to the right, medians are more informative than means. The exchange rate for Ghana is at 1 October 2010: 1 GHS = 0.70 USD.

If we compare the independent variables in Table 3 we see that the two groups have quite similar time-invariant socio-demographic and village level characteristics. However, asset accumulation seems more prevalent for outgrowers than for independent farmers. Contractual arrangements could have led the two groups on different development paths over the years. In particular, contractors own more land and have more land under cultivation than the independent farmers, and their aggregated assets are roughly one third higher. Independent farmers depend more heavily on cash income for investment during the planting season and have more need to accumulate savings to mitigate shocks than contract farmers do, since the

latter access inputs and credit through GOPDC. It seems likely that outgrowers use their cash income to access and cultivate additional land and improve their livelihood by purchasing new assets. In line with this idea, descriptive analysis reveals that outgrowers obtained roughly 75% of their independently farmed food or cash crop plots after they entered into contract farming. Thus, the “land gap” between outgrowers and independent farmers accrued after contractual treatment.

4.3. Regression Analyses

As Table 4 shows, we find that holding an outgrower contract has a highly significant positive effect in all four models. Confirming our hypothesis, the outgrower dummy has a strong effect, increasing overall life satisfaction by roughly 1.5 points on a scale of 0 to 10 (models 1, 3 and 4). The size of the land under outgrower contract, however, has only a small effect. The coefficient of 0.175 for the logarithm of contracted land in model 2 implies that a farmer would need an increase in land under contract of over 30,000% to achieve a one point increase in overall life satisfaction. It therefore seems likely that spillover effects of plots under contract enhance life satisfaction for contract farmers independently of the size of the land under contract and that size-independent effects, like increased security or improved access to credit, account for the major part of the effect. Consequently, we concentrate on the dummy variable in the subsequent regressions. The outgrower dummy remains significant and similar in size when we only control for exogenous socio-demographic and village level characteristics (model 1) and also when we add further socio-demographic-, land- and wealth-related controls (model 3 and 4).

The adjusted r-squared for the models with additional controls (models 3 and 4), 0.336 and 0.354 respectively, is higher than for the net effects models, where it is only just above 0.2 (models 1 and 2). Among other things, this is caused by a significant positive effect of property rights on overall life satisfaction. While a 100% increase in land with the property rights to use it as collateral adds 1.8 points on the life satisfaction scale (model 3), a 100% increase in land with the property rights to use it as collateral and to sell adds 2.2 points (model 3). Thus, the difference between the two bundles is rather small. Interestingly, the absolute size of own land as well as the size of average land owned by neighbours turns out insignificant.¹⁷ The size of own land holdings thus does not seem to matter, whereas having a higher share of one's land with secure rights adds positively to subjective well-being. This is

¹⁷ Land owned does also not turn significant if we exclude land under cultivation.

fully in line with our hypothesis that secure property rights matter for overall life satisfaction. Moreover, the size of the land under cultivation makes a positively significant contribution to overall life satisfaction (models 3 and 4). Although the effect is rather small, a doubling of the acreage of land under cultivation adds 0.43 points on the life satisfaction scale (model 3).

Table 4. Estimations of overall life satisfaction

VARIABLES	(1)	(2)	(3)	(4)
Outgrower dummy	1.418*** (0.305)		1.438*** (0.330)	1.591*** (0.337)
Acres of land under outgrower contract (log)		0.175*** (0.0360)		
Years under outgrower contract	0.00687 (0.0194)	-0.000602 (0.0212)	-0.00247 (0.0206)	-7.60e-05 (0.0208)
Own land in acres (log)			-0.00547 (0.0145)	-0.000753 (0.0151)
Average own land of others (log)			7.987 (7.444)	8.490 (6.545)
Cultivated land in acres (log)			0.436*** (0.120)	0.442*** (0.116)
% of land with property rights to sell and to use as collateral (0-1)			2.207*** (0.433)	2.811*** (0.420)
% of land with property rights to use as collateral (0-1)			1.814*** (0.373)	2.659*** (0.289)
Outgrower dummy * % of land with property rights to sell and to use as collateral				-2.962*** (0.777)
Outgrower dummy * % of land with property rights to use as collateral				-2.143*** (0.568)
Socio-demographic & village level controls	Yes	yes	yes	Yes
Wealth-related controls	No	no	yes	Yes
Observations	824	824	824	824
R-squared	0.209	0.215	0.357	0.376
R-squared adjusted	0.198	0.204	0.336	0.354
Test of joint significance	F(11, 46) = 16.31***	F(11, 46) = 19.26***	F(26, 46) = 54.56***	F(28, 46) = 112.40***
Standard error of regression	1.6441	1.6382	1.4963	1.476
Schwarz information criterion	3226.31	3220.305	3156.415	3145.261

Note: The estimator is OLS. Clustered standard errors at village level in parentheses; significance levels at: *** p<0.01, ** p<0.05, * p<0.1; full estimations are reported in Appendix A.

Holding an outgrower contract and possessing bundles of property rights to land (to use as collateral, or to use both as collateral and to sell) are ways to gain security. Thus, we want to know whether these two effects are in an additive or substitutive relationship. Introducing two interaction terms with the outgrower dummy reveals that both bundles of property rights no longer have an effect on outgrowers' subjective well-being as both terms turn out negatively significant. According to t-test statistics, coefficients of the property rights bundles (2.8 and

2.7) and the interaction terms (-2.9 and -2.1) add up to zero (p-value= 0.00 for model 4). Consequently, this hints at a substitutive effect.

A plausible explanation is this: while independent farmers rely on property rights to reach a level of security which has a positive effect on their subjective well-being, outgrowers access security via the contract and do not gain additional overall life satisfaction from secure property rights. A comparison of different model selection criteria between models 3 and 4 shows a higher adjusted r-squared (0.336 vs 0.354), a higher F-value in the test for joint significance (54.56 vs 112.40), a smaller standard error of regression (1.4963 vs 1.476), and a smaller Schwarz information criterion (3156.415 vs 3145.261) for model 4, hinting at a better fit of this model.

Furthermore, our regression analyses corroborate earlier research by showing positive significant effects for the first and second highest subjective income quintiles, whereas increasing household size and belonging to an ethnic minority have significant negative effects on overall life satisfaction (models 3 and 4 in Table 5 in Appendix A). Aggregated assets have a significant positive effect, whereas being female is, in contrast to findings in the literature, weakly negatively significant in model 3 but turns insignificant in model 4 (Appendix A).

Our results hold for all model specifications when we replace the outgrower dummy with the logarithm of land size under contract (assuming that a percentage increase in the size of land under contract has a constant effect) and when we include the outgrower dummy together with the size of land under contract (correcting for the spike at a value of zero).¹⁸ Using the logarithm of absolute land size with different bundles of property rights instead of percentages produces also similar results. The same holds true for replacing average own land of neighbours with average cultivated land of neighbours and for replacing subjective income with actual household income or agricultural expenditure. Moreover, our results remain robust if we reduce the scale of our dependent variable to seven (by collapsing categories 0, 1, 2 and 3 and categories 9 and 10) as well as to five (by collapsing categories 0, 1, 2, 3 and 4 and categories 8, 9 and 10), which are also commonly used in the literature.¹⁹

Table 6 in Appendix B presents further robustness tests based on the specification of model 4 in Table 4. First, we estimate an ordered logit model to test for the effect of the estimation

¹⁸ The outgrower dummy remains highly significant and the size of land under contract becomes insignificant in this specification. Thus, it confirms the on-off-effect of contract farming.

¹⁹ Results are available upon request.

procedure (model 1). The logistic estimator confirms our findings from the OLS regression. In the second model specification we exclude ‘extreme’ landowners (more than 30 acres) from our sample to avoid possible bias (model 2). The coefficients of the outgrower dummy, the two property rights variables, and their interactions are all highly significant and keep the same direction. Finally, we estimate overall life satisfaction separately for landowners (model 3) and for landless farmers (model 4). Again, the outgrower effect is positive and significant in both models. Bundles of property rights show a significant positive sign and their interaction with the outgrower dummy shows a significant negative sign in the model for landowners. Hence, various robustness checks reveal that results hold for different model specifications and different estimation techniques.

5. CONCLUSION

In this paper we use a setting where outgrower contracts were allocated in a quasi-natural experiment to analyse the causal effect of contract farming on subjective well-being in the sphere of a large-scale investment in land in Ghana. Studies which try to identify the causal effect of contract farming are rare, and hampered by methodological difficulties: those using instrumental variables often face problems caused by weak instruments and those using panel data can only control for time-invariant unobserved factors. To the best of our knowledge this is the first documented setting where contractual treatment took place as a quasi-natural experiment.

Corroborating the findings of the panel data analysis by Dedehouanou *et al.* (2013), we find that contract farming has a positively significant effect on subjective well-being. Using a life satisfaction scale of 0 to 10, we find that subjective well-being is on average roughly 1.5 points higher for contract than for independent farmers. This effect is not limited to monetary aspects but also comprises non-monetary benefits. In particular, we believe that contracts help smallholder farmers to overcome market imperfections and reduce their vulnerability to shocks by mitigating production and marketing risks. Thus, holding an outgrower contract contributes to satisfaction in the security domain encompassed in multi-dimensional concepts of overall life satisfaction (e.g. Cummins, 1996).

Further supporting this view is our finding that secure property rights to land enhance overall life satisfaction for non-contract farmers but cannot increase it for outgrowers. In rural areas secure property rights to land fulfil an important security function and therefore also influence overall life satisfaction through the security domain. Rojas (2006) finds that additional gains

in life satisfaction from increases in one domain, such as security, tend to perish with enhanced satisfaction in this domain. This is in line with our finding that holding a contract and gaining security through property rights show a substitutive relationship: outgrowers can satisfy their security needs through a well-defined contract whereas non-contract farmers lack this source of security and thus rely on property rights for their security. Moreover, in an environment where clearly documented land use rights are rare, the outgrower contract might by itself serve as a document recording land use rights.

In the context of large-scale land acquisitions, well-designed outgrower contracts are believed to benefit both local farmers and the investor. Our research supports this idea. However, our results must be treated with caution and may be only applicable to similar settings. In our setting, farmers' bargaining position is strong due to excess demand for the contracted crop, high monitoring costs for side selling, and the lack of specified quality standards. In addition, we cannot ensure that property rights are exogenous in our setting. Moreover, we do not claim that outgrower contracts can replace secure property rights to land; we rather claim that contract farming can increase subjective well-being, especially through security gains in a setting where existing local land rights are respected. Nevertheless, in order to promote sustainable development, accompanying measures will be necessary to include the poorest population groups.

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APPENDIX A: ESTIMATIONS OF OVERALL LIFE SATISFACTION

Table 5. Full estimations of overall life satisfaction from Table 4.

VARIABLES	(1)	(2)	(3)	(4)
Outgrower dummy	1.418*** (0.305)		1.438*** (0.330)	1.591*** (0.337)
Size of land under outgrower contract (log)		0.175*** (0.0360)		
Years under outgrower contract	0.00687 (0.0194)	-0.000602 (0.0212)	-0.00247 (0.0206)	-7.60e-05 (0.0208)
Own land in acres (log)			-0.00547 (0.0145)	-0.000753 (0.0151)
Average own land of others (log)			7.987 (7.444)	8.490 (6.545)
Cultivated land in acres (log)			0.436*** (0.120)	0.442*** (0.116)
% of land with property rights to sell and to use as collateral (0-1)			2.207*** (0.433)	2.811*** (0.420)
% of land with property rights to use as collateral (0-1)			1.814*** (0.373)	2.659*** (0.289)
Outgrower dummy * % of land with property rights to sell and to use as collateral				-2.962*** (0.777)
Outgrower dummy * % of land with property rights to use as collateral				-2.143*** (0.568)
Years of schooling			-0.00221 (0.0131)	-0.00289 (0.0123)
Gender (1= female)	-0.308* (0.167)	-0.279* (0.165)	-0.283* (0.158)	-0.252 (0.156)
Age	0.0129 (0.0317)	0.0106 (0.0323)	0.0355 (0.0300)	0.0297 (0.0285)
Age squared	-9.06e-05 (0.000311)	-7.15e-05 (0.000319)	-0.000393 (0.000295)	-0.000344 (0.000284)
Ethnic minority	-0.415*** (0.116)	-0.411*** (0.113)	-0.232** (0.110)	-0.235** (0.109)
Migrant	-0.191 (0.147)	-0.203 (0.142)	-0.146 (0.127)	-0.143 (0.130)
Married			-0.0539 (0.156)	-0.0581 (0.159)
Ill in last 2 weeks			0.152 (0.107)	0.152 (0.109)
Household size			-0.0777*** (0.0272)	-0.0773*** (0.0269)
Big village (> 5,000)	0.148 (0.120)	0.149 (0.128)	0.0533 (0.141)	0.0664 (0.142)
Small village (< 1,000)	-0.158 (0.143)	-0.173 (0.144)	-0.127 (0.145)	-0.118 (0.144)
Bosome (trad. area)	0.810*** (0.210)	0.814*** (0.205)	3.896 (3.850)	4.418 (3.340)
Kotoku (trad. area)	0.223** (0.106)	0.219* (0.112)	0.0275 (0.175)	0.109 (0.171)
1. subjective income quintile			0.985*** (0.255)	0.975*** (0.253)
2. subjective income quintile			0.655** (0.259)	0.559** (0.258)
3. subjective income quintile			0.103	0.0436

			(0.192)	(0.194)
4. subjective income quintile			0.104	0.113
			(0.173)	(0.177)
Average subjective income of others			5.194	6.325
			(6.253)	(5.473)
Aggregated assets (log)			0.139*	0.129*
			(0.0717)	(0.0684)
Constant	5.071***	6.337***	-28.05	-32.53
	(0.759)	(0.814)	(33.24)	(29.08)
Observations	824	824	824	824
R-squared	0.209	0.215	0.357	0.376

Note: The estimator is OLS. Clustered standard errors at village level in parentheses; significance levels at:*** p<0.01, ** p<0.05, * p<0.1; reference categories: main ethnicity: Akan, traditional area: Abuakwa, village: small, subjective income: poorest quintile.

APPENDIX B. ROBUSTNESS CHECKS

Table 6. Further estimations of overall life satisfaction

VARIABLES	(1)	(2)	(3)	(4)
	Ordered logit full sample	OLS excluding extreme landowners	OLS landowners only	OLS land less only
Outgrower dummy	1.857*** (0.452)	1.565*** (0.346)	1.201*** (0.425)	2.025*** (0.508)
Years under outgrower contract	0.00118 (0.0267)	0.00315 (0.0213)	0.0255 (0.0231)	-0.0243 (0.0283)
Own land in acres (log)	0.00113 (0.0162)	-0.00191 (0.0154)	-0.103 (0.0709)	
Average own land of others (log)	8.769 (9.678)	9.057 (7.412)	7.033 (7.150)	
Cultivated land in acres (log)	0.479*** (0.145)	0.445*** (0.114)	0.507*** (0.118)	0.439** (0.191)
% of land with property rights to sell and to use as collateral(0-1)	3.193*** (0.494)	2.850*** (0.413)	2.877*** (0.445)	
% of land with property rights to use as collateral (0-1)	2.922*** (0.399)	2.689*** (0.282)	2.743*** (0.318)	
Outgrower dummy * % of land with property rights to sell and collateral	-3.820*** (0.812)	-2.924*** (0.753)	-3.337*** (0.745)	
Outgrower dummy * % of land with property rights to use as collateral	-2.155*** (0.827)	-2.083*** (0.623)	-2.174*** (0.624)	
Years of schooling	-0.00257 (0.0163)	-0.00187 (0.0125)	-0.00689 (0.0161)	0.00533 (0.0172)
Gender (1= female)	-0.277 (0.196)	-0.289* (0.162)	-0.0361 (0.212)	-0.689** (0.256)
Age	0.0341 (0.0387)	0.0357 (0.0320)	0.0304 (0.0295)	0.0588 (0.0562)
Age squared	-0.000395 (0.000389)	-0.000412 (0.000321)	-0.000343 (0.000293)	-0.000661 (0.000575)
Ethnic minority	-0.240* (0.132)	-0.227** (0.112)	-0.204 (0.169)	-0.171 (0.192)
Migrant	-0.116 (0.161)	-0.173 (0.134)	-0.0136 (0.181)	-0.377** (0.186)

Married	-0.0430 (0.184)	-0.0576 (0.164)	-0.0648 (0.217)	-0.00421 (0.266)
Ill in last 2 weeks	0.103 (0.134)	0.140 (0.112)	0.252* (0.143)	-0.0104 (0.167)
Household size	-0.0831** (0.0367)	-0.0846*** (0.0260)	-0.0844** (0.0342)	-0.0747* (0.0386)
Big village (> 5,000)	0.0754 (0.184)	0.0440 (0.144)	0.0653 (0.173)	0.0680 (0.238)
Small village (< 1,000)	-0.0903 (0.187)	-0.133 (0.146)	-0.0633 (0.210)	-0.301 (0.194)
Bosome (trad. area)	4.743 (4.934)	4.631 (3.708)	4.329 (3.332)	-0.0541 (1.378)
Kotoku (trad. area)	0.209 (0.213)	0.0820 (0.183)	0.219 (0.225)	-0.0132 (0.481)
1. subjective income quintile	1.297*** (0.330)	0.904*** (0.256)	1.366*** (0.234)	0.176 (0.449)
2. subjective income quintile	0.753** (0.332)	0.536** (0.263)	0.671** (0.270)	0.514 (0.347)
3. subjective income quintile	0.0426 (0.238)	0.0128 (0.190)	0.171 (0.267)	-0.0418 (0.237)
4. subjective income quintile	0.242 (0.229)	0.0960 (0.179)	0.238 (0.210)	0.0664 (0.314)
Average subjective income of others	7.171 (7.905)	6.600 (6.057)	6.530 (5.187)	-2.082 (3.477)
Aggregated assets (log)	0.160* (0.0835)	0.118* (0.0693)	0.136* (0.0789)	0.146 (0.0986)
Constant	37.08 (42.42)	-34.41 (32.50)	-31.01 (28.94)	9.351 (11.21)
Observations	824	809	483	341
R-squared		0.374	0.457	0.300

Note: Clustered standard errors at village level in parentheses; significance levels at: *** p<0.01, ** p<0.05, * p<0.1; reference categories: main ethnicity: Akan, traditional area: Abuakwa, village: small, subjective income: poorest quintile. In model (2) extreme landowners with own land > 30 acres are excluded. In model (3) landless farmers are excluded, whereas model (4) excludes landowners.